The Orchadian

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Official Journal of the Australasian Native Orchid Society

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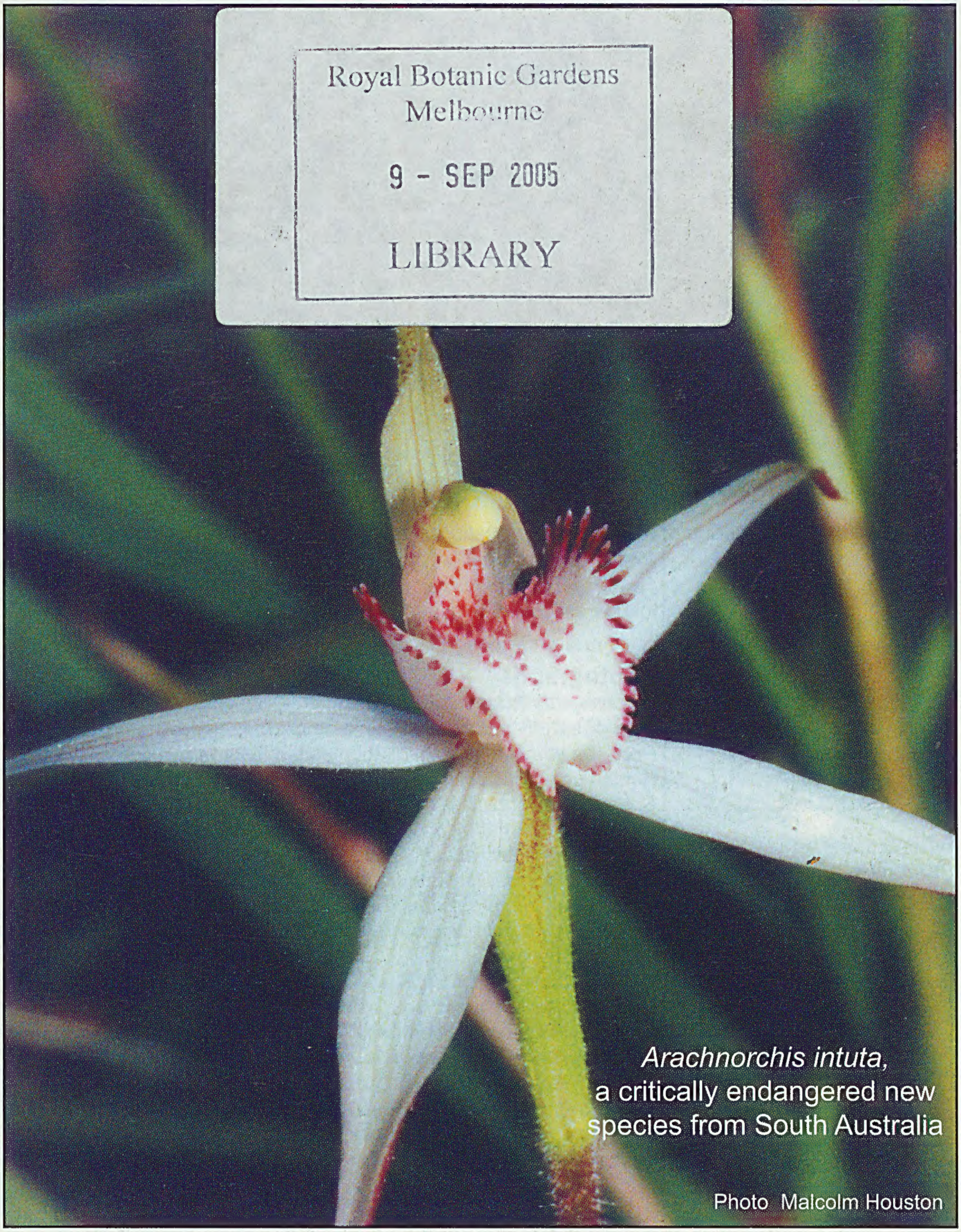

Arachnorchis intuta,
a critically endangered new species from South Australia

Photo Malcolm Houston

June 2005
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The Orchadian

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6th ANOS Conference and Show

In September 2004, at a meeting of ANOS Inc. held in conjunction with the 5th ANOS Conference in Campbelltown, it was decided to accept a proposal from the ANOS (Qld) Kabi Group Inc. to host the 6th ANOS Conference and Show in Brisbane in 2007.
Consequently the Kabi Group appointed a subcommittee to organize this event and it has had several meetings at which the following decisions were taken:

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1. The dates of the event will be :
Wednesday the 29th of August to Sunday the 2nd of September 2007.

2. The **venue** chosen is:
Riverglenn Conference Centre, Indooroopilly
This centre will be booked as exclusive use for the event and has excellent facilities for the Show, The Conference, the Cocktail Party, the Dinner, Vendor stands etc.
Additionally there is on-site accommodation (single rooms only) available at well below commercial rates for bed and breakfast.
Indooroopilly is a suburb located about 10 minutes drive west of Brisbane CBD. Riverglenn has good public transport to it and excellent parking areas within its spacious grounds.

3. The 6th ANOS Conference **logo** will be:
An artistic representation of *Pterostylis grandiflora*, a magnificent terrestrial species found in abundance in SE Qld. It should be in flower at around the time of the Conference. The artwork has been prepared and a letterhead designed.

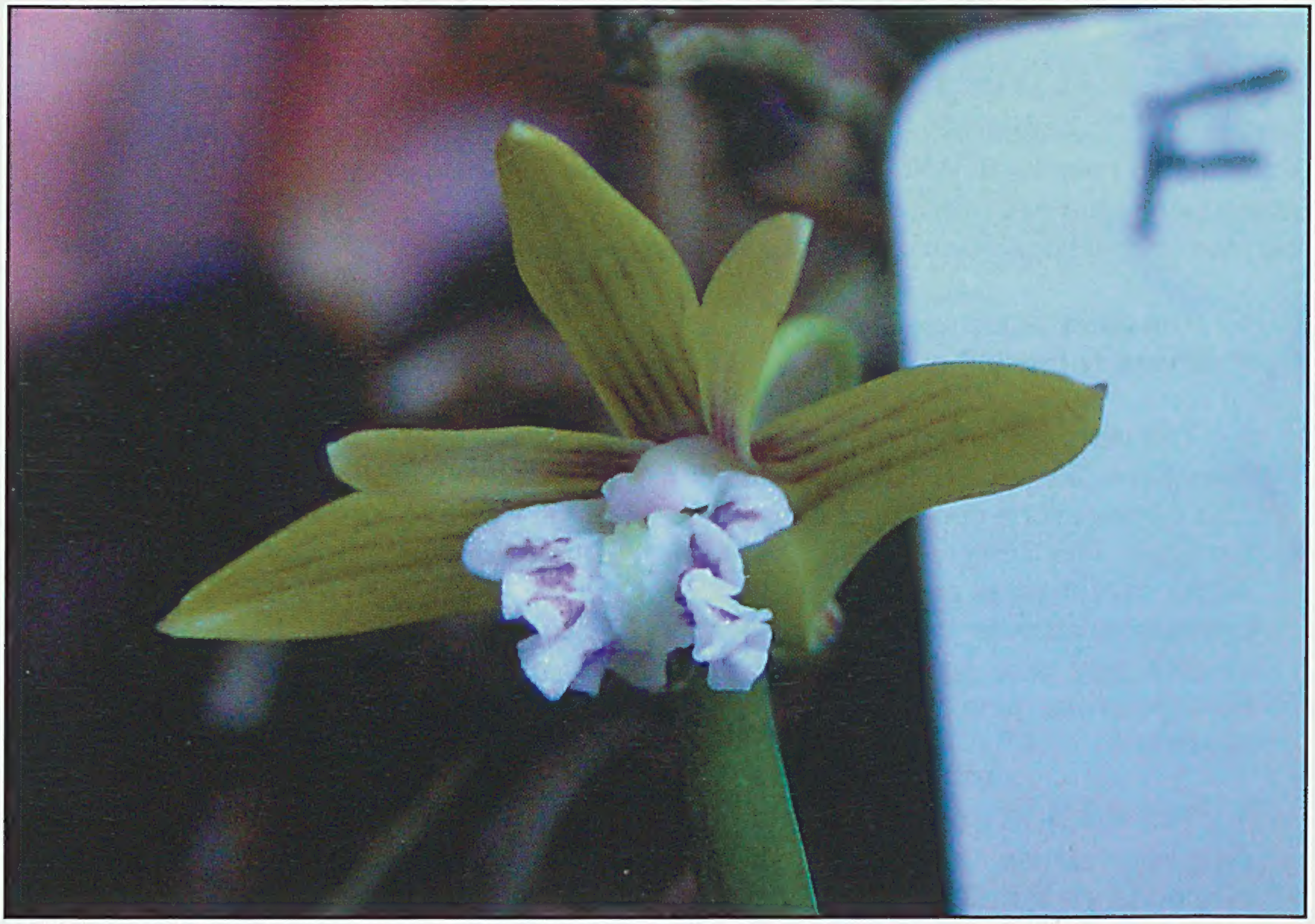
4. **Registration fees** have been discussed, and every indication is that these will be most reasonable, commensurate with past events even allowing for inflation. The committee's aim is to make the event both memorable and affordable for all ANOS members.
A variety of packages will be offered incorporating such options as single or double, with or without dinner, cocktail party, accommodation etc.
The intention is to release further details of these once prices and funding details are locked in and a reasonably accurate cost can be calculated. It is anticipated that this will occur in about March 2006.

Visit our website at http://www.anos.org.au/conference for further information as it becomes available. To be included in an email list to receive updates about this event please send a message to: **agroffen@gil.com.au**

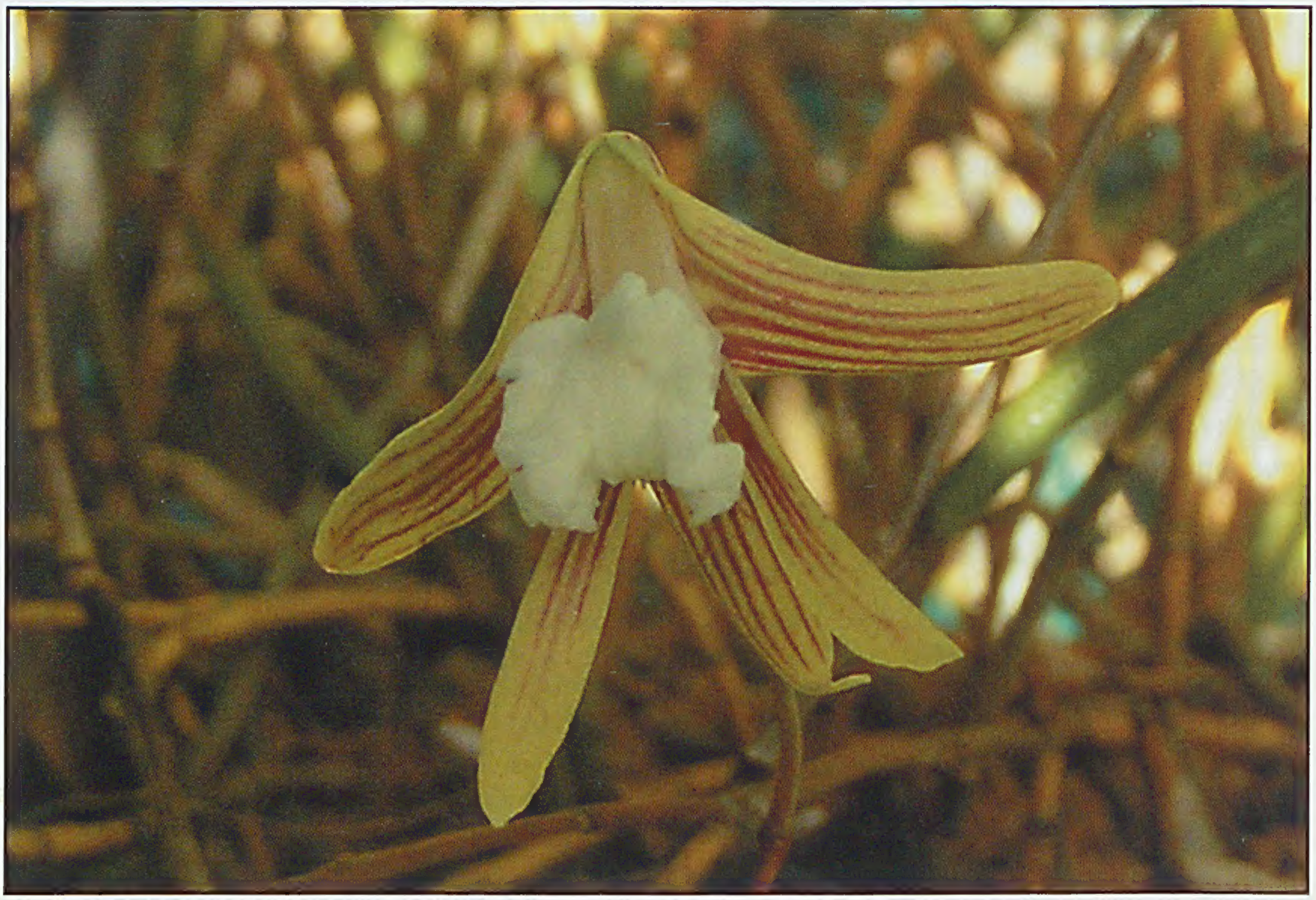
Annual General Meeting of the Australasian Native Orchid Society Inc.

The 42nd Annual General Meeting of ANOS Inc. will be held at the Gosford RSL Club at 10.00am on Sunday 6th August, 2005.

Any Group or individual member who has matters to be included on the agenda, along with any nominations for positions on Council, should have these with the Secretary no latter than one week prior to the AGM.
Send these items to: The Secretary, ANOS Inc. PO Box 318, Willoughby, 2068



Dockrillia Duffy, clone F. Watagan Mountains



Dockrillia striolata, Watagan Mountains

Photos Peter Presland

Habitat photo of *Dockrillia* Duffy study site. Photo Len Field

A study of the hybrid swarm *Dockrillia pugioniformis* x *Dockrillia striolata* in the Watagan Mountains.

Tony Clarke
9 Yvonne Close
Jewells NSW 2280

A short history: In May 1982 Neil Finch visited an area on the eastern escarpment of the Watagan Mountains near the Central Coast of New South Wales. After climbing down a steep cliff face, he discovered three separate clones of a natural hybrid between *Dockrillia pugioniformis* and *Dockrillia striolata*. He reported this find in an article in *The Orchadian* Vol. 7 No. 10, December 1983.

In 1986, I was privileged to accompany Neil on a return visit to the area. I was impressed by the sheer beauty of the area and its diverse flora, with panoramic views of Lake Macquarie in the distance.

Years have passed since that time, and to my knowledge this area has been visited at least by orchid enthusiasts on at least seven occasions. Various verbal reports have indicated the presence of at least eight separate clones of the natural hybrid.

Some months ago I returned to the area, and was appalled to see that some Philistine had dumped a truckload of rubbish over the cliff at this very spot. I was then determined to do as best a study of the area as possible so that a unique and interesting piece of our flora could be recorded.

A group of enthusiasts including Peter Presland, Len Field, Leanne Pattinson and myself carried out a full survey of this site and recorded at least thirteen different leaf-shaped plants. Unfortunately, not all were in flower, but each clone appeared to be distinctive, a description of the each leaf shape was recorded.

Some general observations.

(1) Some readers may not be aware of the Watagan form of *Dockrillia striolata* in that it has a large white "ruffled" labellum and this characteristic shows in all the hybrids that have flowered. D. *pugioniformis* generally has purple markings on the labellum, (certainly the form at this site does), and all hybrids that flowered have these markings also.

(2) Even though all plants observed have characteristics between both species found in this area, both in flowers and leaf shape, and the only *Dockrillia* species found in this area are *D. pugioniformis* and *D. striolata,* these various clones have to be considered putative or supposed parents.

Clements and Sharma (*The Orchadian*, Autumn 1993) identified a hybrid of *D. striolata* and *D. pugioniformis* using starch gel electrophoresis, the origin of this plant was from "the Central Coast of New South Wales", presumably from this site.

(3) All plants of *D. pugioniformis* found were growing low down on the trees at the base of the cliff of the site. *D. striolata* was found to be growing at all levels of the cliff, a height of approximately 20 – 30 m.

All the hybrids can be divided into two general leaf shapes:

a. Those that are almost cresent shaped in cross section or terete with flattened sides, (clone D, E).

b. Those that have various types of flattened leaves.

Even though four "flattened terete' plants were found I will describe only two (D and E) as they were all practically indistinguishable.

All plants of this type had grown to a relatively large size, up to 1.5 m long and to 0.5 m wide. They all grow near the base of the cliff or to half way up. From a distance I could see that these plants were different to *D. striolata* in that they spilled down the rock face, were pendulous and swayed with the air movement. Even though they appeared terete, feeling the leaf confirms the irregular shape.

Why the plants root readily, and do not attach and hug the rock face as *D. striolata* usually does I don't know. Some plants of *D. striolata* become pendulous when they grow over a cave like recess but this is not common.

All plants of the flattened leaf type were either high up the rock face, mainly at the top along rocky outcrops, although the largest plant was half way up, growing amongst the "flattened terete" hybrid. (D and E).

Descriptions.

The following descriptions are of the plants recorded at the site in the recent survey. Each plant was given a letter to distinguish it (D to M). Three plants already in my collection, and designated clones A B and C, were given to me as divisions by Neil Finch and Peter Wilkinson some fifteen years ago. They were originally collected as divisions of plants from the survey site, and they are not described here as they probably represent plants still growing at the site.

Clone D: Flower yellow/green to 22 mm (across lateral segments). Inside labellum predominantly white with purple spots either side, convoluted. Outer margins wavy and sinuate, light purple striations on back of segments.

Leaves up to 90 mm long x 4 mm wide, slight groove running down middle. From a distance looks terete but by touching leaf, or on closer observation one surface slightly rounded and reverse surface "scooped out". Large plant, pendulous 1 m x 0.5m, rooting freely but not attaching to rock face.

Clone E: Flower more yellow than D, 24 mm across lateral segments. Prominent white labellum, outer margins sinuate. Purple markings on the midlobe more prominent than D.

Leaves up to 80 mm long x 3 mm wide. All other aspects similar to D. Plant not as big as D, 0.8 m x 0.3 m, tending to be pendulous but rooting freely.

Clone F: Flower light yellow and more similar in overall shape, (except labellum) to *D. pugioniformis,* the purple striations on back of segments not quite so prominent as D or E. Prominent white labellum with purple markings, outer margins sinuate.

Leaves up to 75 mm long x 7 mm wide, highly keeled on back surface, very thin with a desiccated appearance and pointed end, similar to *D. pugioniformis*. Found growing half way up cliff among clone D.

Clone G: Not in flower. Leaves up to 47 mm long X 6 mm wide, highly keeled on back surface with pointed end, similar to *D. pugioniformis*. Plant branches readily, found growing midway up cliff adjacent to D and F.

Clone H: Found by Leanne Pattinson during a later survey growing on small sandstone outcrop at top of cliff. Plant about 300 mm long, pendulous but rooting freely, branching to 125 mm wide. Leaf moderately keeled up to 75 mm x 8 mm with pointed end. No flowers.

Clone I: Small plant about 250 mm long growing on sandstone outcrop at the top of cliff. Leaves up to 60 mm long x 6 mm wide, slightly keeled on back surface with pointed end. No flowers.

Clone J: Found lying on ground adjacent to small rocky outcrop at the top of the cliff. Small plant about 250 mm x 100 mm.

Leaves up to 110 mm long by 4 mm wide, flattened with slight groove down middle. No flowers.

Clone K: Found by Peter Presland during a later trip to photograph previously found plants. Small plant about 250 mm long x 100 mm wide. Some leaves flat, some keeled; up to 60 mm x 15 mm, pointed end, no flowers.

Clone L: Found growing among *Pyrossia repestris* on small rocky outcrop at the top of the cliff. Small straggly plant unbranched 200 mm long. Leaves up to 50 mm x 8 mm, some keeled while others were rounded.

Clone M: Growing on small rocky outcrop at the top of the cliffs. Small plant 300 mm long x 120 mm wide. Leaves slightly rounded one side and flat on the other up to 80 mm long x 6 mm wide. No flowers.

The fact that the various clones were shy to flower is probably due to the heavy shade they grow in. Certainly the various forms I have seen in cultivation are quite floriferous when grown in adequate filtered light.

Clone D and clone E, I speculate, are F1 hybrids between *D. striolata* and *D. pugioniformis* while clones F to M inclusive are F2 hybrids of (*D. striolata* x *D. pugioniformis*) x *D. pugioniformis.*

Undoubtedly, all plants from this area have not been found due to their inaccessibility. The large plants growing midway down the cliff deserve closer inspection but this would require abseiling of which I am neither competent (nor brave enough).

These descriptions, and I must apologise if they are inadequate to satisfy the reader, but I certainly have no desire to collect all the forms and most descriptions were observed insitu.

Distribution in the Watagans

I believe the earliest documented discovery of this hybrid was by Bob Raine in 1972 (ANOS Newcastle Group bulletin Feb. 1973) at Mt Warrawolong at the southern end of the Watagans. (In fact, this plant is still alive and well, having been donated by Bob to the Newcastle Region Botanic Gardens in recent years).

In 1984, the late Bill Skillicorn registered, with the RHS, the hybrid between *Dockrillia pugioniformis* and *Dockrillia striolata* as *Dockrillia* Duffy.

In 1991 Dave Mitten accompanied the late Bill Skillicorn to the eastern side of the Watagans; ....."to a location that Bill was familiar with, however I can't recall how to get there again. We found seven different clones of *D.* Duffy on three large rocks that were about 40-50 m apart. The leaves of the different clones varied considerably with some flattened like *D. pugioniforme* and some more like *D. striolata* in shape". (Personal communication from Dave Mitten – 16/01/05)

It is possible that this location is the study area but Dave's description of the area does not correspond. What is interesting about Dave's story is that Bill Skillicorn knew where this population was and that they did not just stumble upon it whilst bush walking.

In early January 2005, whilst searching for bi-pinnate forms of *Asplenium polyodon* I stumbled upon two more small colonies of this hybrid approximately 4 km, as the crow flies, from the study area.

I believe it to be widespread in the Watagans at least, but as it favours cliffs it is probably generally inaccessible and to ascertain its abundance or otherwise, would be difficult.

Suggested reading: I recommend any interested readers of this study to read the following articles in '*The Orchadian*'.

Dendrobium pugioniforme x *D. striolatum* – A Natural Hybrid reported N. Finch Dec. 1983.

Dendrobium pugioniforme x *D. striolatum* – More Notes on the Natural hybrid D. Banks Feb. 1984.

Starch Gel Electrophoresis – A technique used to identify putative hybrids between *Dendrobium striolatum* x *D. pugioniforme* I. K. Sharma and M. A. Clements. Autumn 1993.

Natural hybrids within the Genus *Dockrillia* in Australia G. Smee. June 1999.

Acknowledgements:
My thanks to Len Field (72 and I am still dragging him into the bush), Peter Presland and Leanne Pattinson for their support and help. Thanks also to Michael Harrison for his technical comments and to Andy Pattison for typing this paper.

Finis – to conclude I appeal to all lovers of our native flora to get out into the bush and record your observations before it is cleared or an illegal dumper has found another precious gem to bury. I hope to continue with this study and will report through *The Orchadian* in the future.

-oOo-

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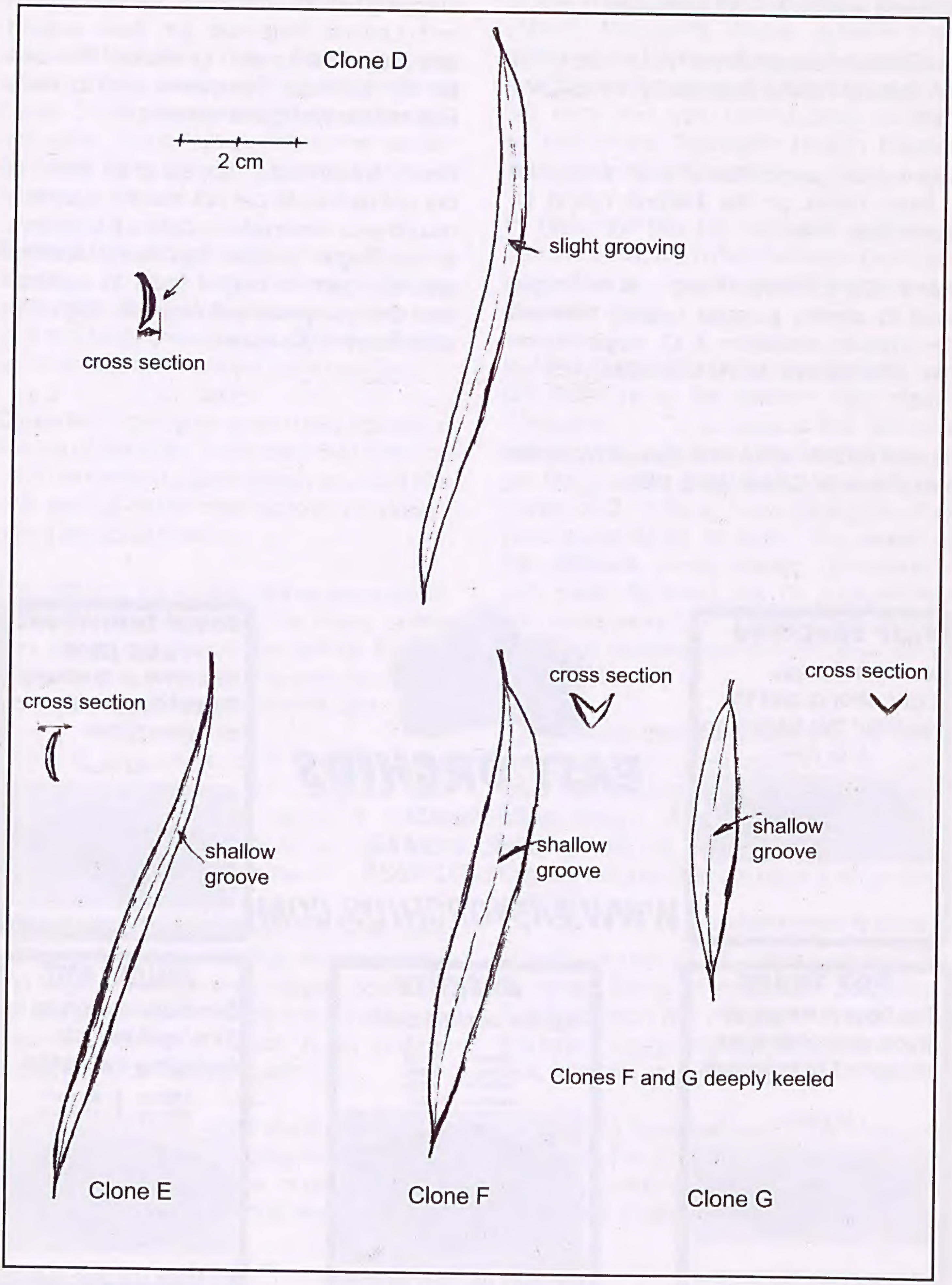
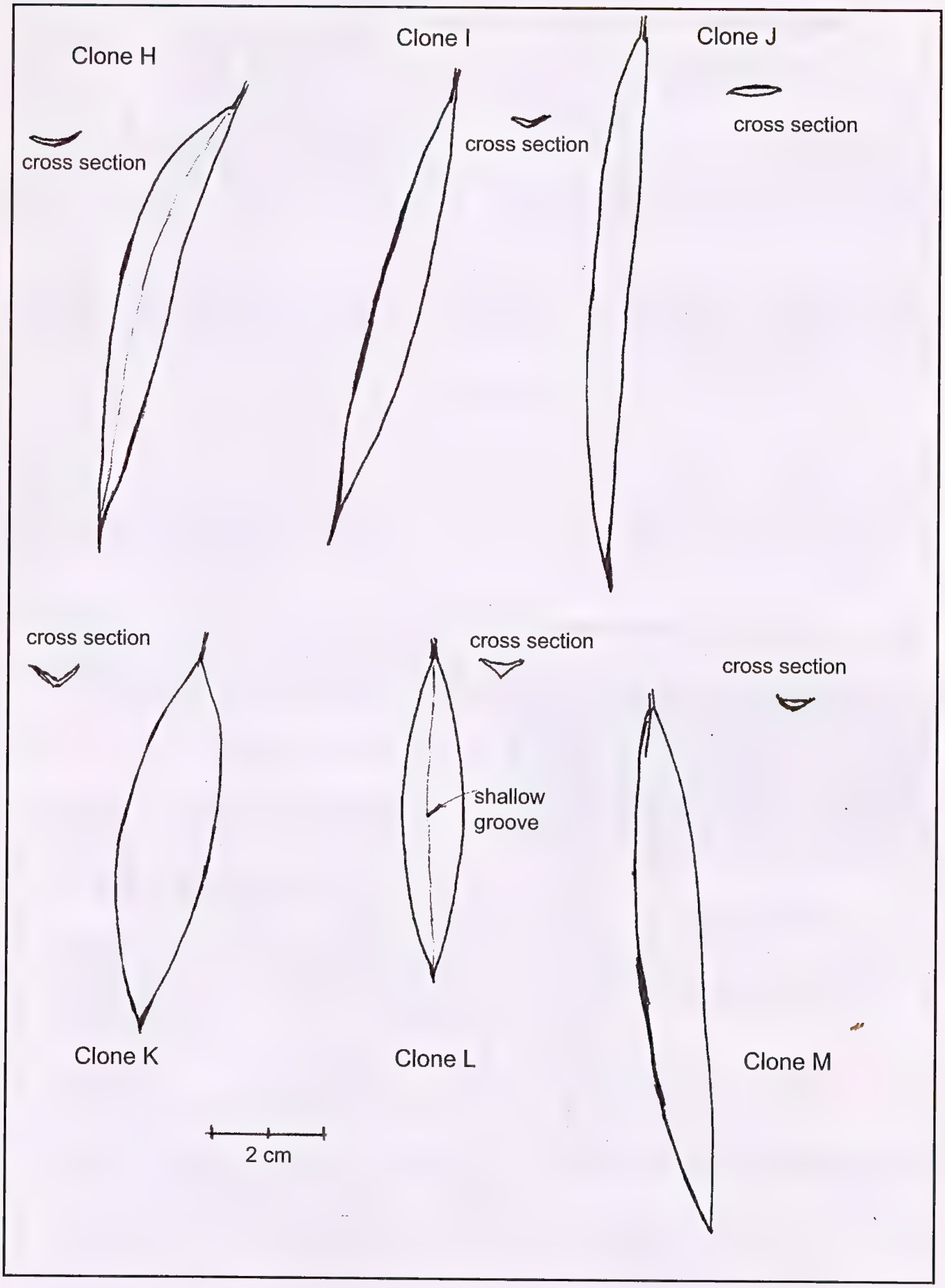
Dockrillia Duffy leaf shapes clones D - G



Dockrillia Duffy leaf shapes clones H - M



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The Australasian Native Orchid Society Inc. wishes to advise, that at the Annual General Meeting of the Association, to be held on the 6th August 2005 at the Gosford RSL Club, The following amendment to the Constitution is being put forward.

That Paragraph 5 of; 2. INTERPRETATION of the constitution be amended.

From

"Groups"means a number of members holding regular meetings, responsible for their own administration and finance as provided in Rule 31 and Appendix 2., domiciled in N.S.W. and not currently incorporated under the Associations Incorporation Act 1984, as amended.

To now read

"Groups;"means a number of members holding regular meetings, responsible for their own administration and finance as provided in Rule 31 and Appendix 2 not currently incorporated under any State or Territory Associations Incorporation legislation.

The amendment is made by ANOS Council.

Australian Orchid Research. Volume 4 is now available.
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Pigeons lead to two good orchids.

Fred Fear
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Some fifteen years ago, I was driving a truck transporting racing pigeons to various race points throughout New South Wales and Queensland. One of the places I visited was Gympie, Queensland. Having visited Gympie on numerous occasions with pigeons over the years, I had become friends with a pigeon fancier there, who, on one of my trips in 1989, noticed a plant of *Dockrillia pugioniformis* (Dagger Orchid), in the truck. I had purchased the plant from a road side stall, on the way to Gympie. Upon seeing the plant, my friend asked if I was 'into' orchids. He then said he would bring along a few pieces of orchids, for me. Amongst them were a three leaf piece of *Dockrillia nugentii* and a six leaf piece of *Dockrillia cucumerina*.

My friend was an Engine Driver for the Queensland Railways. One time, whilst Queensland Rail were installing a new section of railway line, somewhere between Gympie and Rockhampton, he drove the locomotive for the work crew and as engine drivers only drive engines, he had plenty of time. Whilst the engine was stationary he would wander through the trees that had been knocked down and gather a number of orchid plants. That is where the plants that these pieces were off, came from.

Upon returning home, I mounted these plants on small pieces of dry tree branch which my son picked up from the bush near our home. I do not know what type of tree it was from, but luckily, to date the borers have not touched it.

I have been extremely lucky with these two pieces, as they have grown into plants that have down well in Judging in latter years. The *D. nugentii*, is now known as *Dockrillia nugentii* 'Jeffrey', I gave it the clonal name Jeffery, after my eldest son, who died of leukaemia thirteen years ago. It was due to his interest in pigeon racing that I was involved in driving the pigeon truck. Without this involvement, I would not have these two plants. The orchid was awarded an AM by ANOS in1998 and went on to win the Bill Murdoch Trophy the same year. At the recent 5th Australasian Native Orchid Conference and Show 2004 in Campbelltown it was judged Grand Champion Orchid.

The *Dockrillia cucumerina* was given the clonal name of Margaret after my wife, who has had to put up with me devoting a fair percentage of my time to orchid growing and orchid societies. It was awarded an AM by The Orchid Society of New South Wales and the Australian Orchid Council in December 2003, and was awarded the Bill Murdoch Trophy for 2004.

Recently the Conservation Officer of the Newcastle Group, asked what my secret was in growing the *D. cucumerina*. He stated that people take plants of this species from the bush and usually the plants go backwards rapidly, and die.

I do not have any secrets with it; it is just Tender Loving Care, (TLC). In saying this, I have found that my plant *D. cucumerina* 'Margaret' does not like growing in a shade house. I tried it some time ago, as a plant from a more local area was doing fine. Unfortunately, the Queensland plant started to go backwards under bush house conditions, so I promptly returned it to the covered house, where it has since thrived.

I water these plants once or twice a week, depending on the weather, right throughout the year. They are fertilized about once every two weeks with a low N, high K fertilizer. I use town water supply mostly, but now and then catch a little rainwater and use that. My orchid house has plenty of air movement, which I consider very important to most orchids.

-oOo-

Growing *Sarcochilus*, the jewel of Australian orchids.

Peter E. Gibson
9 Hayes Place
Minto, New South Wales, 2566

I have found that to grow *Sarcochilus* (sarcs) successfully you need a good open medium that will drain easily but will still stay damp until the next watering. I have tried bark but was not happy with the results. For the past two years I have been using pine mulch, pure timber pieces, which has no toxins, it is government guaranteed as it is used in children's playgrounds. I purchase it from Tim's Nursery at Mt Annan; it sells for $50 a cubic metre.

Before using the pine mulch make sure that you sift the mulch to get rid of the fines. My basic growing medium for sarcs, using a 2 lt measuring container is:
4 litres of pine mulch
2 litres of super coarse perlite
1/4 litre canunda shells (or course shell grit)
1 level teaspoon of blood and bone

Thoroughly mix together and damp down. I keep doing this until I have filled a large garbage container. The most amazing thing about this growing medium is that I now use it for all my orchids. From deflasking I use 50 mm tubes growing each sarc in a separate in a separate tube; I don't use community pots as I think they are a waste of time.

After twelve months I move the hero's into 70 mm x 60 mm tubes for the next twelve months. Usually by this time I have flowered some of the seedlings already. For the next twelve months I pot them into 80 mm squats and then into 100 mm squats. The largest size pot I use for the sarcs is a 120 mm squat. I find that sarcs grow better when they are not over potted. I also use tree fern pots for my best sarcs as they seem to like growing in these pots. The key is to drill some holes in the base of the pots to allow the air to circulate.

My fertilizer program consists of Campbell's yellow, Epsom salts, Tasmanian Bull Kelp seaweed and South Australian Tuna. Both the seaweed and fish are in liquid form.

Week 1. 1 1/2 teaspoons of Campbell's yellow and 1/4 teaspoon of Epson salts in eight litres of water
Week 2. 60 mls of seaweed in eight litres of water
Week 3. The same as Week 1.
Week 4. 24 mls of fish in 8 litres of water.

Remember that this fertilising program works for me in my growing conditions. I water two or three times a week. At present I am growing approximately 700 *Sarcochilus* seedlings and I get my seedlings from various nurseries and private growers.

Some of my favourite crosses.

The best seedling I flowered in 2004 was from an experimental cross by Kevin Wilson, *S.* Riverdene X (*S.* Fitzhart x *Rhinochilus* Rona) flowering in a 50 mm tube on a small raceme. The four flowers were as filled in as you would like, orange red centre to pink red with white tips on all segments, and the flowers had texture like cardboard. Dennis Wood also flowered an excellent seedling of the same cross. I have fifteen more to flower and the future for this cross looks good. When you consider the orchids used in this cross are basically primary hybrids, it seems that sarcs may have a bright future with colour and shape, which no one would have thought of ten years ago.
Sarcochilus Riverdene =
S. hartmannii X *S. hirticalcar*.
Sarcochilus Fitzhart =
S. hartmannii X *S. fitzgeraldii*.
Rhinochilus Rona =
Rhinerrhiza divitiflora X *S. fitzgeraldii*.

Two other crosses I hope to flower this year (2005) are *S.* Elise 'Plum' X *S. hartmannii* 'Noelene' HCC, hybridized by David Butler. The purple colour of *S.* Elise 'Plum' and the shape of *S. hartmannii* 'Noelene' and one of the only clones of *S. hartmannii* to allow the colour of the other parent to come through. I am looking forward to round, filled in, dark purple sarcs. The other cross is Neville Ropers *S.* George Colthup 'Jimmy' X *S.* Velvet 'Sparkles', imagine large filled in flowers in red and splash colours.

In closing, I hope that I have been able to help you in growing these wonderful little jewels of Australian native orchids.

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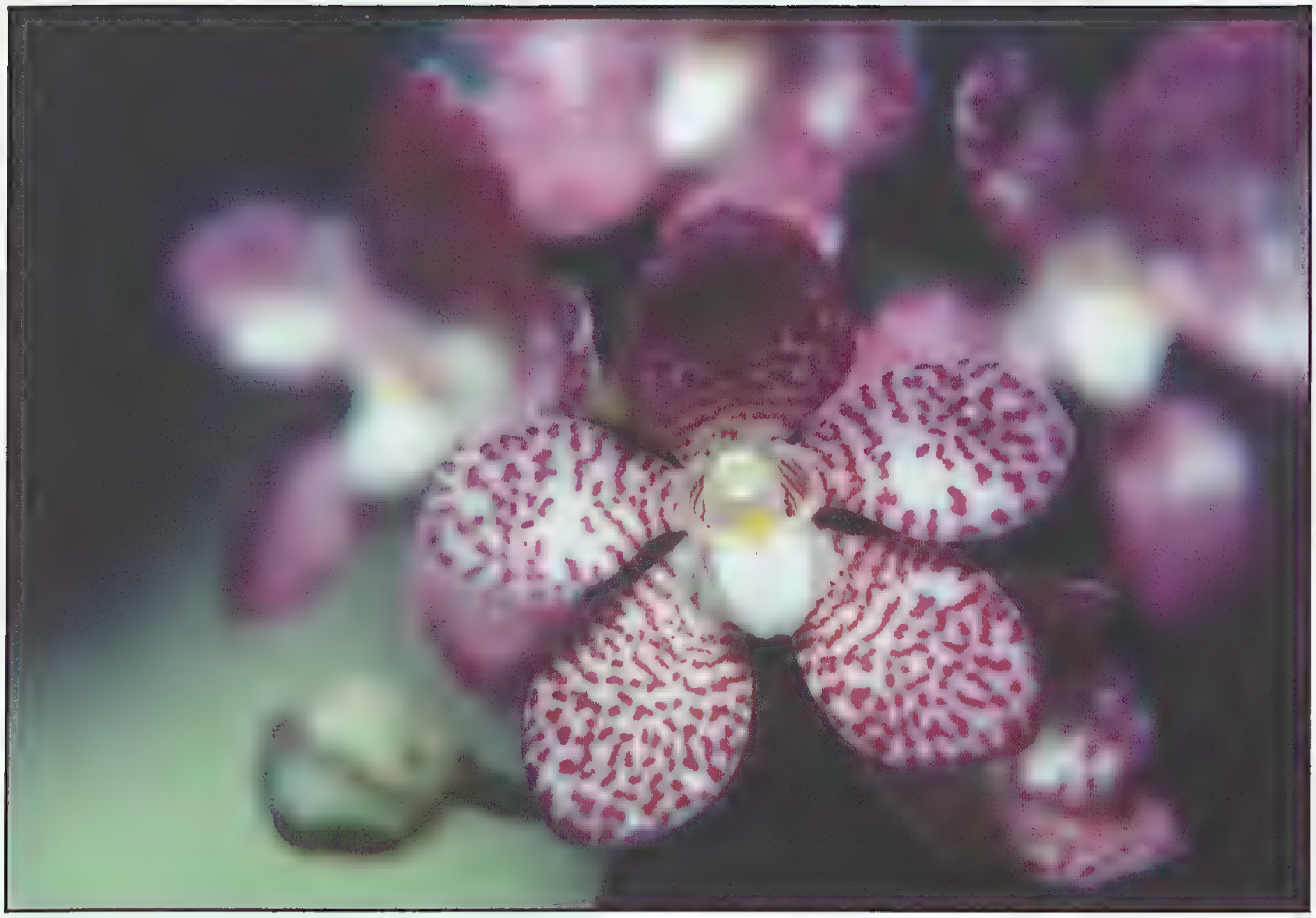
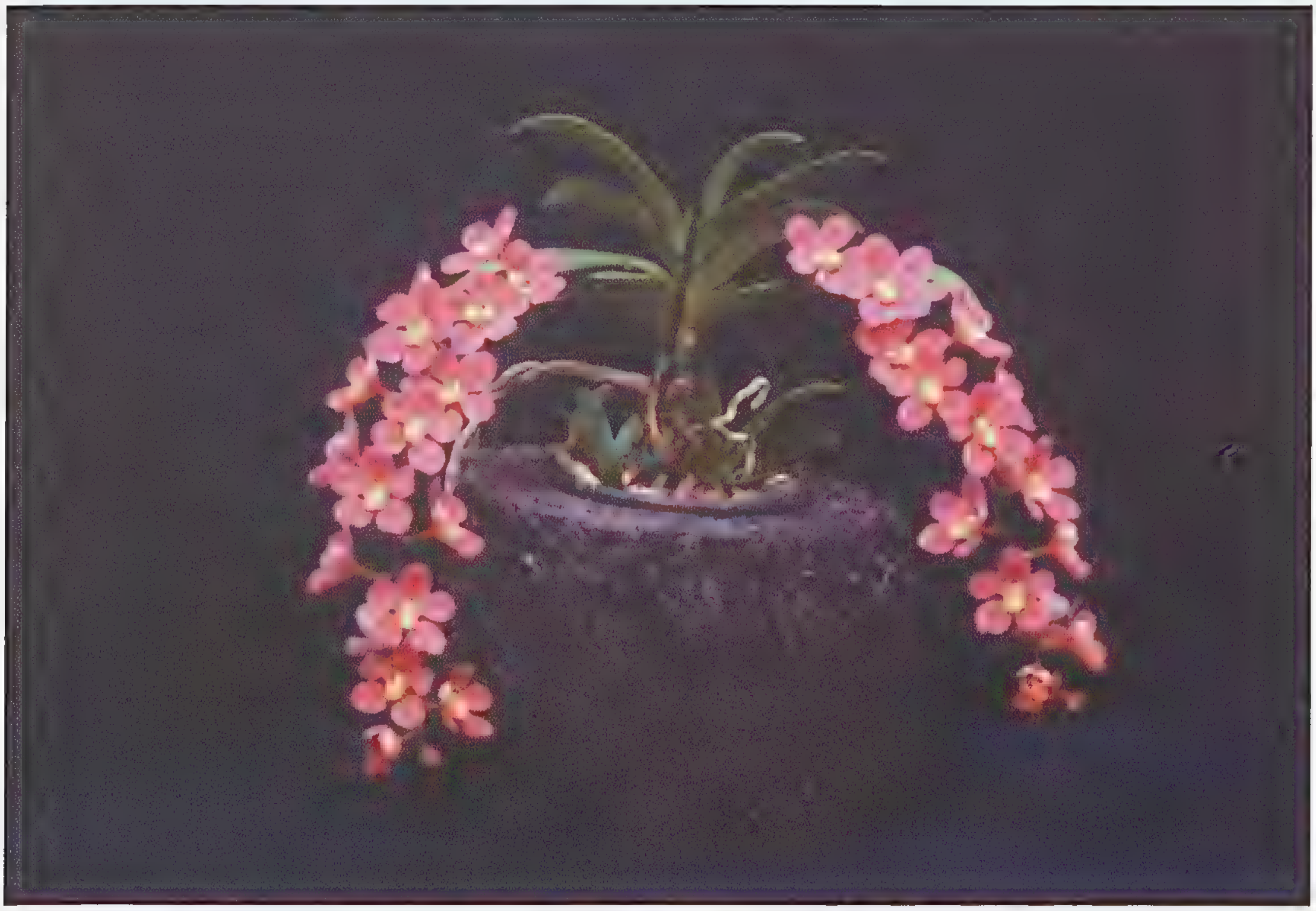


Sarcochilus Bobby Dazzler X (*S.* Fitzhart x *S. falcatus*)



Sarcochilus Burgandy on Ice 'Sensation'

Photos Peter Gibson

Dendrobium crassilabium (Orchidaceae:Dendrobieae), a new species from Papua New Guinea, Northern Province

Phil Spence
PO Box 3525, Wamberal
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Abstract

Spence, Phil (PO Box 3525, Wamberal NSW 2260, Australia) 2004. *Dendrobium crassilabium (Orchidaceae: Dendrobieae), a new species from Papua New Guinea, Northern Province.* Telopea *10(4): 781–785.* A new species, *Dendrobium crassilabium*, discovered in the Northern Province of Papua New Guinea, is described and illustrated. It is distinguished from other members of section *Lautouria* by having green flowers with a thick and fleshy, narrowly spathulate labellum midlobe, and spreading narrow sidelobes.

Introduction

In 1994 I collected material of an unnamed species of the genus *Dendrobium* section *Latouria f*rom dense forest about 10 km from the nearest small village of Waja, near the mission station of Sangara, which is about half way along the road from the towns of Popondetta and Kokoda in the foot-hills of the Kekend mountains in the Guava Range, Northern Province, Papua New Guinea. Most plants in this region were destroyed when Mount Lamington erupted on 21 January 1951. This small, dense colony of plants survived a c. 200° C flash that killed the entire village population and burnt the forest badly. The ground was covered with volcanic ash to the extent that when the trees started to grow they produced a new root system in the ash several meters above the old forest floor. Some 40 years later the roots remain and most of the ash has been washed away, leaving a trampoline-like structure of roots several meters above the forest floor. In this forest at the edge of the Roduna River (which is a tributary of the Kumusi River) nine plants were removed with the consent of the land owners and the village people. Export and import permits were arranged, and plants were quarantined for approximately four months at a registered quarantine nursery. Four plants did not survive fumigation.

These plants were not in flower when found and did not flower until several months after being released from Quarantine. I compared these plants with the type specimens of the following closely related species at CANB (then on loan from BO and AMES): *Dendrobium euryanthum* Schltr., *Dendrobium subquadratum* J.J.Sm. and *Dendrobium sikini* Schltr. In addition, observation of live plants of *Dendrobium sikini* Schltr. in the wild and pressed flowers in my personal herbarium, supported the view that this was a new undescribed species. Comparisons were also made with the drawings and descriptions of *Dendrobium euryanthum*, *subquadratum, sikini*, and other related species, obtained from Smith (1911: 553, 1913:42, 1929:417) and Schuiteman and de Vogel (2002). As a result of this research, it was clear that these plants are representatives of an unnamed species and accordingly it is described here as new. It should be noted that in the future this species may be placed in the genus *Sayeria* (Clements, pers. comm.).

Dendrobium crassilabium *P. Spence*, sp. nov.
Ab alliis speciebus sectionis Latouriae labello crassissimo calosissimoque differt.

Type: cultivated Sydney, 19 Aug 1994, *P. Spence & Clements 8190* (holotype: NSW; iso: CANB, Herb. P. Spence 37). Ex Papua New Guinea, Dense forest, at edge of Roduna River about 10 km from the nearest small village of Waja, near the mission station of Sangara. On tree boughs, alt. c. 2500 m, *P. Spence s.n.*, 1994.

Epiphytic herb, erect or somewhat spreading, 12 to 28 cm tall. *Rhizome* abbreviated 0–0.2 mm long. *Roots* threadlike, glabrous. *Stems* pseudobulbous, cylindrical, slightly attenuated towards the base, finely furrowed lengthwise, with 1–3 leaves, 3–8 mm diam. *Leaves* terminal to sub-terminal, spreading at an angle of about 45° to the vertical, lanceolate to elliptic, acutely tapering from inwardly curved sides to a narrow point, cuneate at the base, 12–18 cm long, widest at or below the middle, 3–5 cm wide. *Inflorescence* terminal or sub-terminal, shorter than the leaf, 6–10 cm long slender, slightly thickening along the rachis: rachis 4–8 cm long with 4–14 flowers; peduncle thin 20–40 mm long, 1.8 mm diam.; bracts ovate or elliptic, shortly acuminate, glabrous, 3 to 4 times shorter than the pedicels, at a c.15° angle to rachis at base, 3–4 mm long. *Flowers* at a c. 45° angle to rachis, with sepals and petals light apple-green to almost olive-green; labellum similar or darker. *Lateral sepals* oblong, slightly falcate, acute, 12 mm long, 8 mm wide, apex cuspidate. *Dorsal sepal* oblong, acute, apex apiculate to cuspidate, 14 mm long, 6–8.5 mm wide. *Petals* obliquely lanceolate, acute or acuminate, c. 11 mm long, 3–4 mm wide. *Labellum* 3-lobed; attached at the based by a narrow claw, non-articulate; lateral lobes small, spreading, oblong, slightly falcate, obtuse, 3 mm long, 2.5 mm wide; mid-lobe much larger, porrect, with slightly intoned margins, c. 12 mm long, c. 7 mm wide; epichile fleshy, rigid, medially sulcate, transversely elliptic-reniform, thick for the section, cordate to almost square, truncate with a downturned apicule, 6.5 mm wide, not exceeding the lateral lobes; callus ligulate, expanded and thickened in front, abruptly obtuse, extending from the base of the labellum to base of the mid-lobe. *Column* broadly elliptical, hooded, exceeding length of the lateral lobes of the labellum, 8–9 mm long, 0.28–0.3 mm wide. *Anther* broadly elliptical, hooded, slightly truncated, glabrous, c. 0.12 mm long × 0.18–0.2 mm wide. *Ovary* thick for the size of the flower, almost cylindrical, 4–6 mm long, 3.4–4 mm wide, tapering to a slender pedicel, 8 mm long, 2 mm wide. Fig. 1.

Derivation of name: the Latin for 'wood-like labellum'.

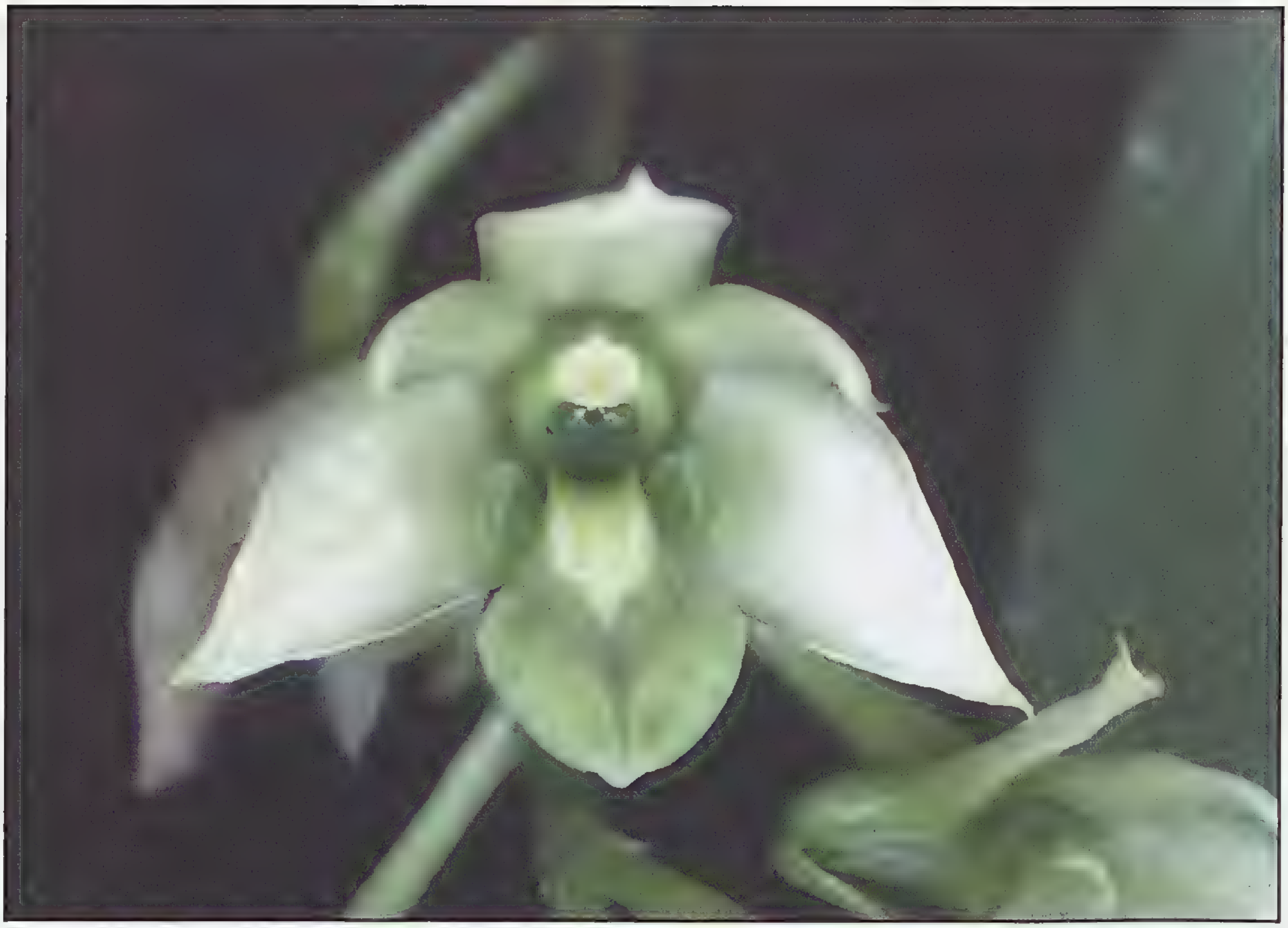
Habitat and ecology: Epiphytic on main trunk and heavy boughs of trees overhanging a fast flowing river. This species forms large colonies on its host trees and was found in the humus of long ribbon ferns that secured its roots. The plants that I observed were exposed to full sun and constant high humidity that was lifting from the fast- flowing water not far below.

Distribution: Papua New Guinea, Northern Province, Guava Range near Sangara, at the base of Kekend mountains. Only known from type locality. The cultivated plants from which the holotype and isotype duplicates were made, were originally separate plants adjacent on the same bough; these are considered duplicates under Article 8.3, ICBN St Louis 1999.

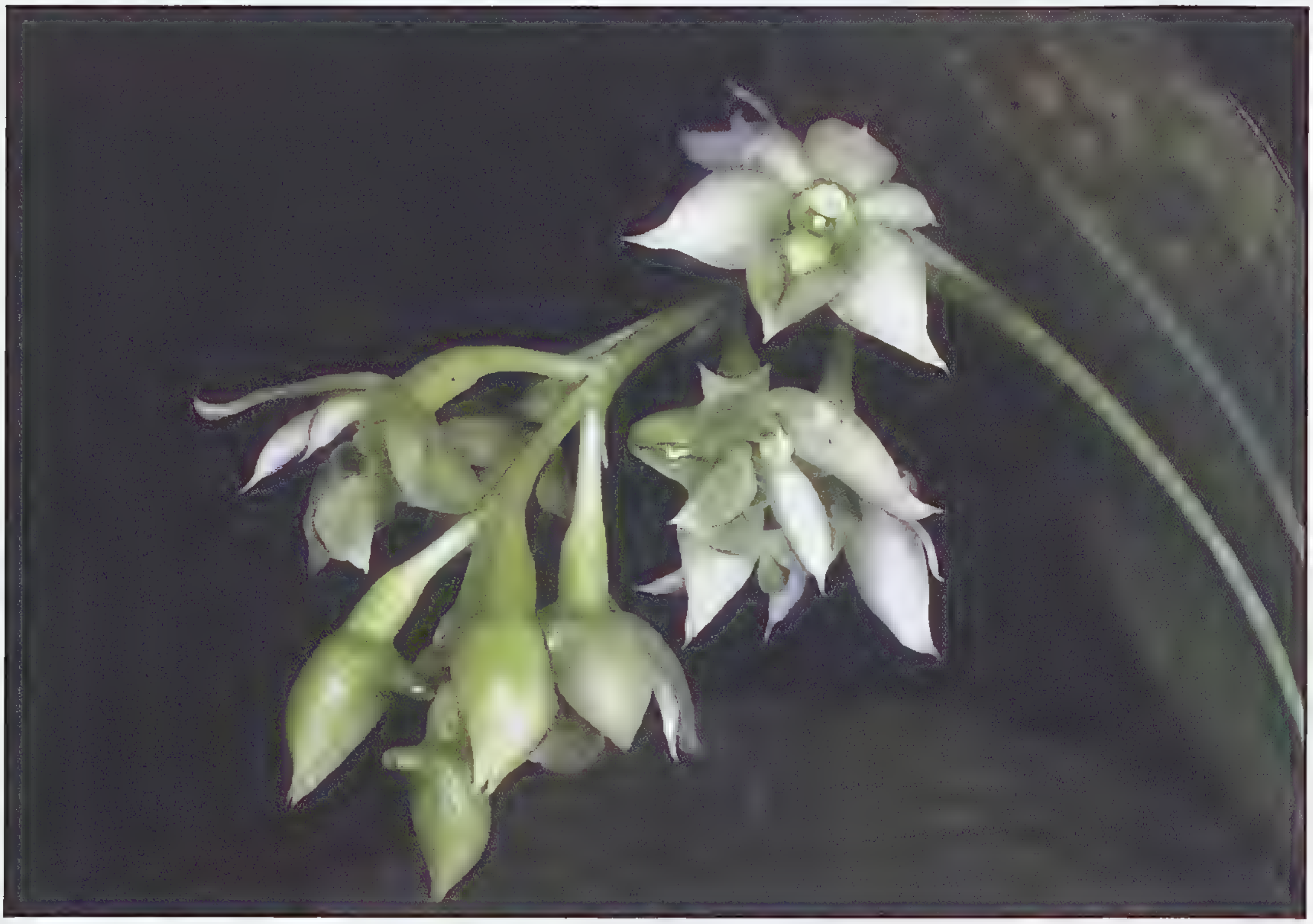
Notes: The new species differs, and can be readily distinguished, from the closely related species, *D. subquadratum* (J.J. Smith 1908), and *D. sikini* (Schlechter 1912) as shown in Table 1.

Table 1. Comparison chart for *Dendrobium subquadratum*, *D.sikini*, and new species, *D. crassilabium*.

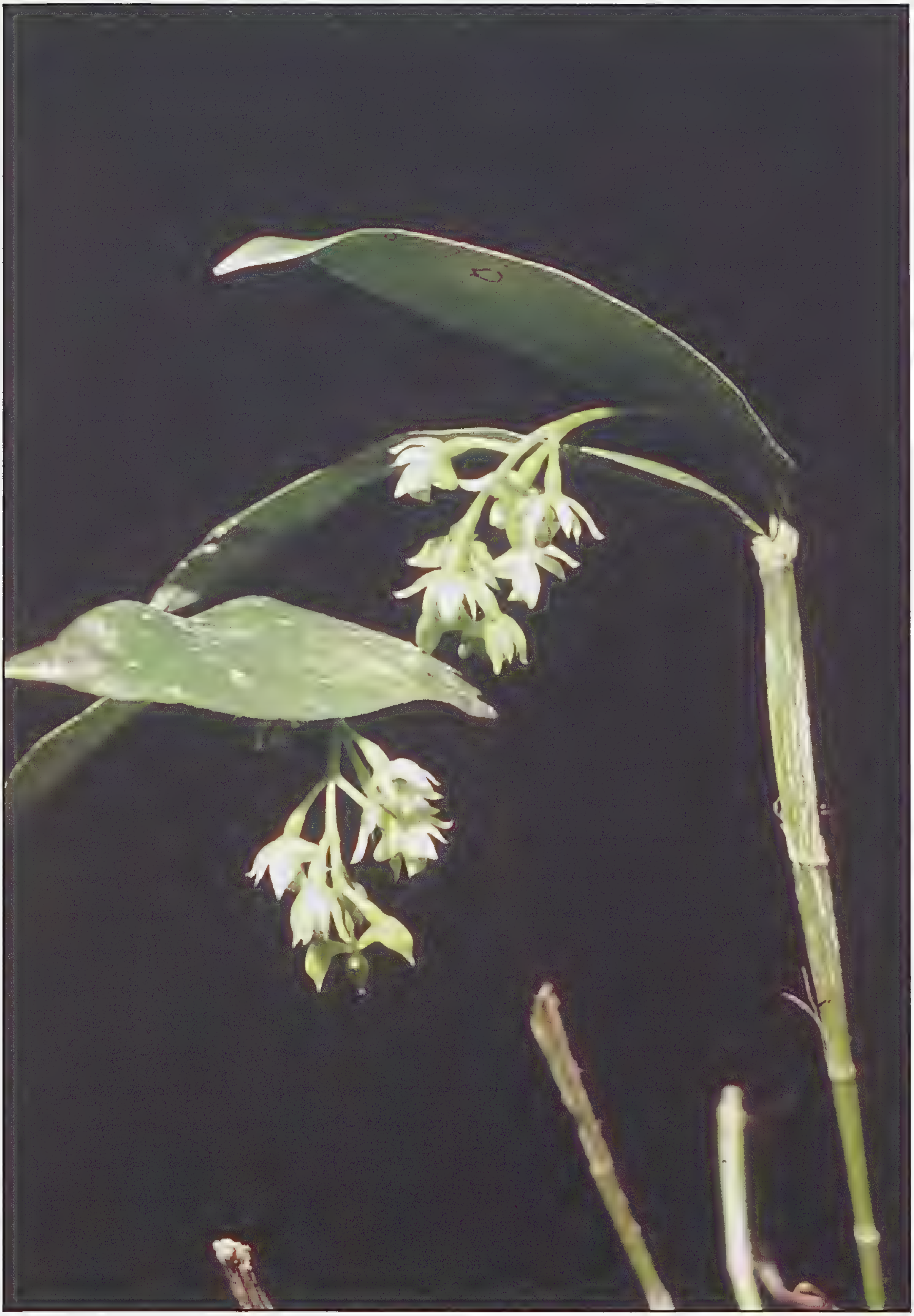
	D. subquadratum	***D. sikini***	***D. crassilabium***
Plant habit	pendent	pendent erect,	spreading
No. of flowers	8	1–5	4–14
Inflorescence length, cm	12	5–8.5	6–12
Callus, mm	15.5	8.5	5
Ovary width, mm	-	2.5	3.4–4
Dorsal sepal, width at base, mm	13.5	12.2	8.5
Dorsal sepal, length, mm	15	9.2	14
Pedicel length including ovary, mm	20	8.8	11.5–12
Colour petals and sepals	white-pale green to orange	white-yellow	white-pale green
Colour labellum	pale green-yellow to dark orange	deep yellow	olive green–brown green



Dendrobium crassilabium, flower close-up.



Dendrobium crassilabium, raceme habit.



Dendrobium crassilabium, plant habit.

Photos Phil Spence

The proposed new species is an erect-growing plant whereas the other two are pendent, and *D. crassilabium* generally has significantly more flowers.

The sepals and petals are similar on all three species. From the above table it can be seen that there are marked differences in the length and width of the dorsal sepals. The ovary of *D. crassilabium* is shorter and wider than in *D. sikini*.

The callus on the labellum of *D. crassilabium* is yellow and fleshy and much shorter than in the other two species. The side lobes of the middle extension of the labellum are thicker, with a more pronounced wood-like texture than in the other two species. The side lobes of the labellum of *D. subquadratum* are much wider than in the other two species.

Cultural notes: The plant was raised from seed and distributed under the horticultural name of 'Nuff' (as it came from the village of a Mr. Nuffield). *Dendrobium crassilabium* responds to pot culture and is extremely easy to cultivate. I use a medium-sized pine bark being careful not to cover the rhizome as new growths have a tendency to tunnel rather than grow erect especially if good light is not provided from directly above. My plants are housed in a glasshouse with a minimum winter temperature of 8° C. The plants grow best with high humidity and air movement and hung just under the glass. This species is very free-flowering and is almost constantly in flower. Flowers will last up to two or more months.

Acknowledgments

I wish to thank Royal Botanic Gardens Sydney, especially Dr Peter Weston for overseeing this manuscript and Dr Peter Wilson for constructing the Latin diagnosis of *Dendrobium crassilobium*. Dr Mark A. Clements (CANB) assisted with herbarium material and provided advice. Ed Wilson assisted with the manuscript.

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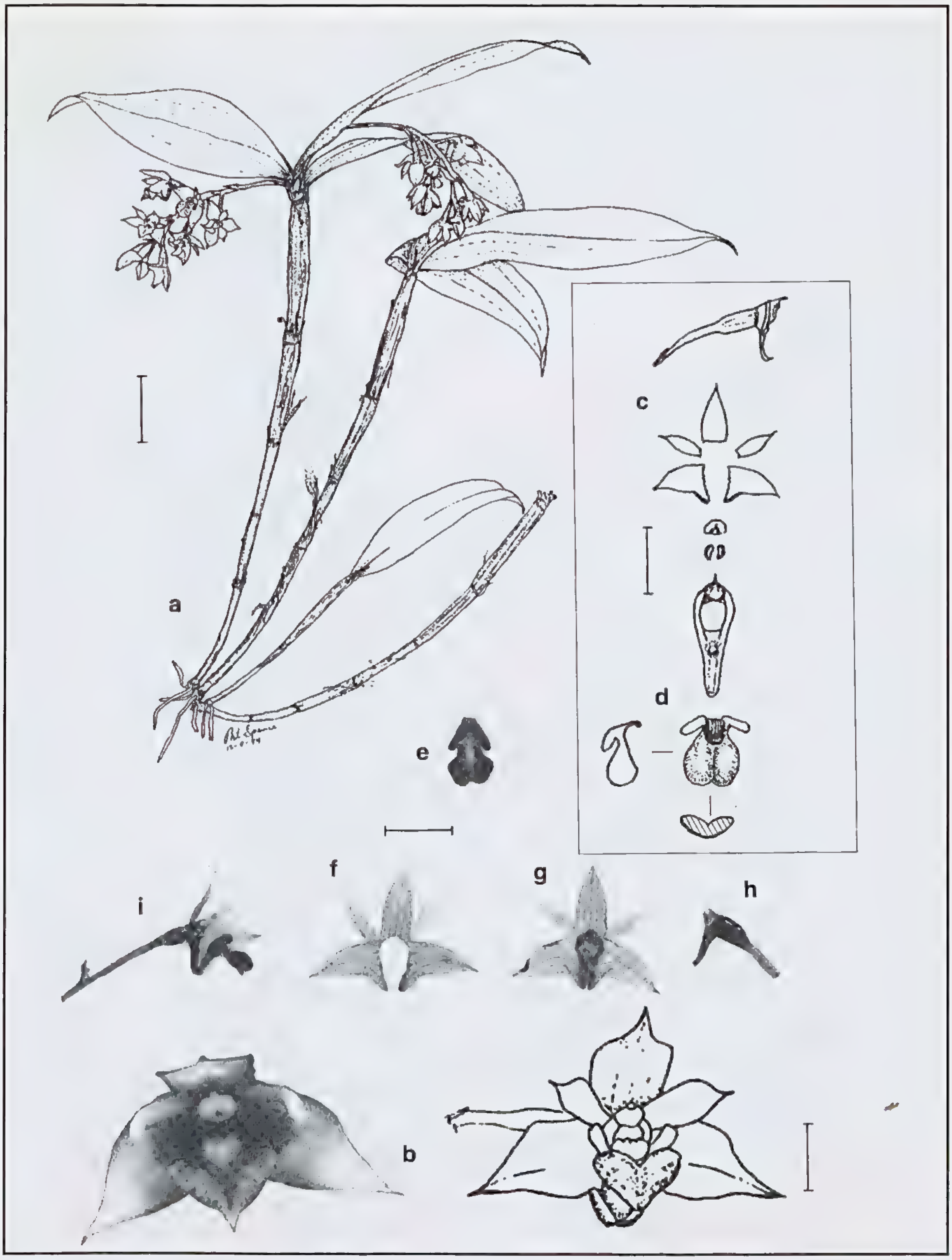
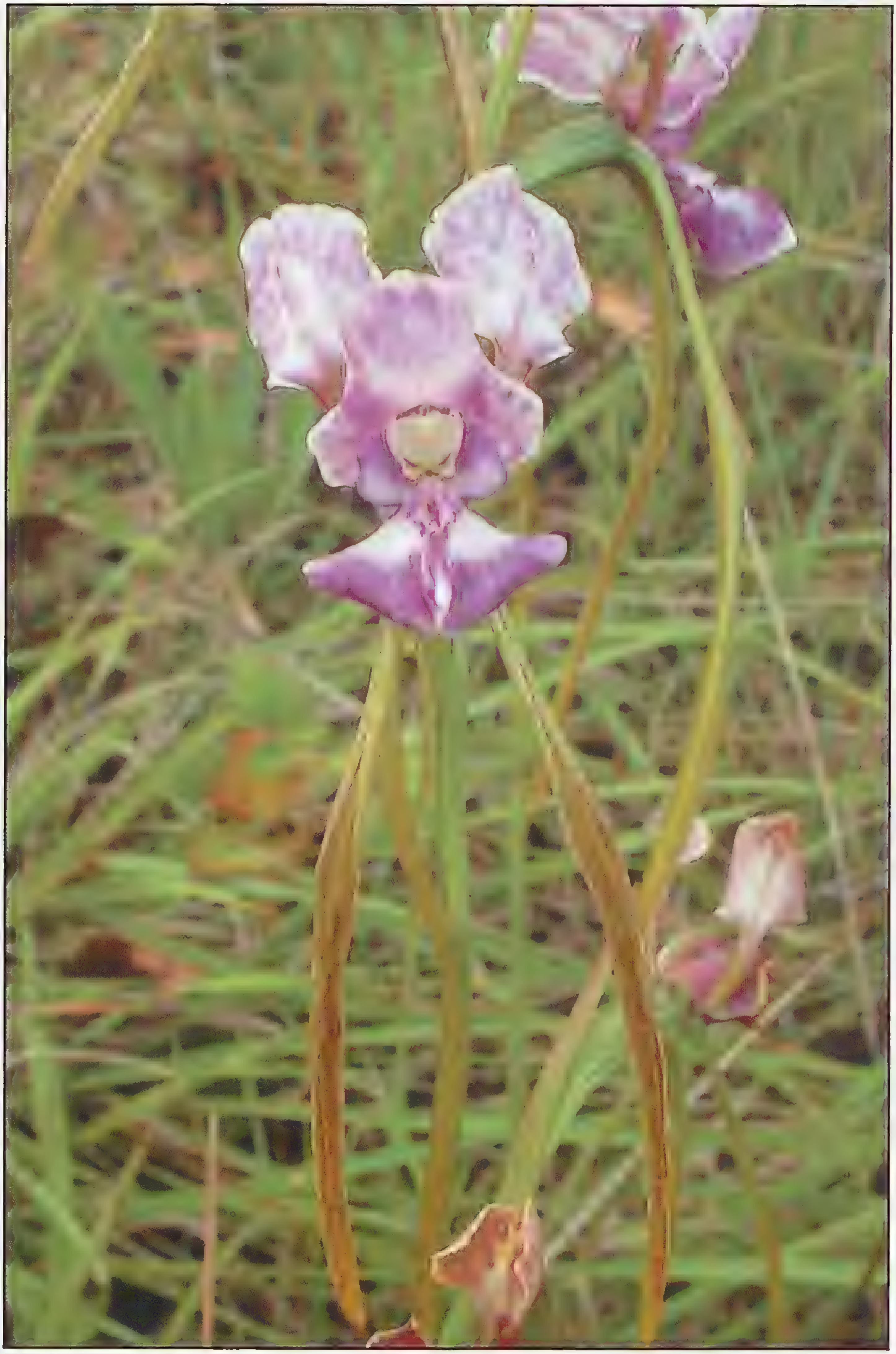
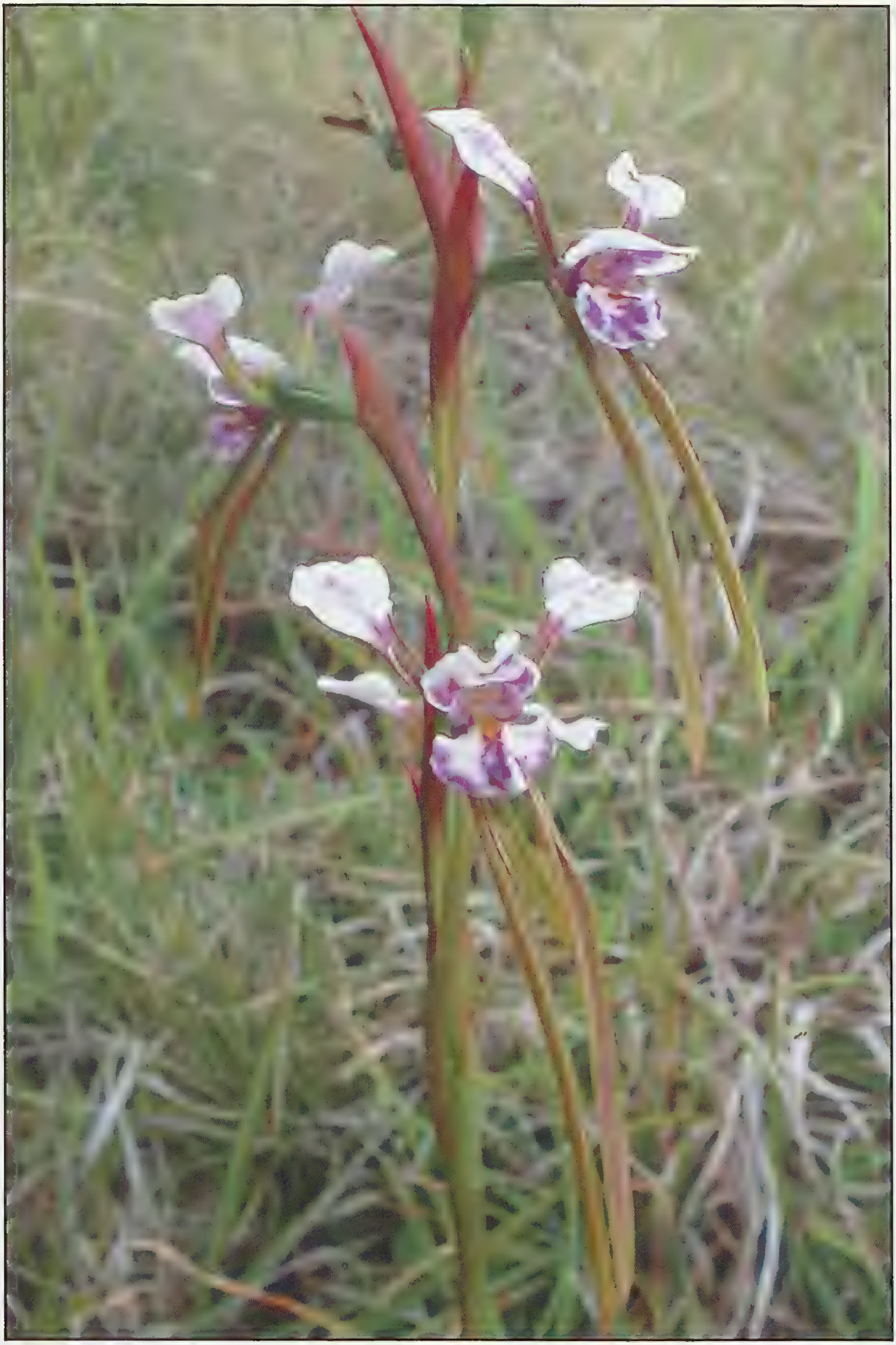


Fig. 1. *Dendrobium crassilabium* P. Spence. **a,** habit; **b,** flower; **c,** flower dissection; **d,** labellum with cross-sections (latitudinal below, longitudinal to left); **e,** labellum pressed flat; **f,** sepals and petals with column removed; **g,** sepals and petals with column, front view; **h,** column, column foot, pedicle and ovaries; **i,** complete flower, longitudinal section, pressed flat. Scale bars: a= 3.4 cm, b= 0.57 cm, c–i = 0.8 cm.



Diuris sp. aff. *dendrobioides* (Ebor)

Photos Lachlan Copeland



Diuris sp. aff. *dendrobioides* (Guyra)

Photos Lachlan Copeland

Rare or Threatened Orchids of the Guyra-Ebor Road

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Introduction

The road from Guyra to Ebor on the Northern Tablelands of New South Wales is approximately 80 km in length and is an easy one hour's drive. The road, in the author's opinion, traverses some of the most interesting orchid habitat to be found anywhere in north-eastern NSW. Recent upgrading of the road, including sealing the last remaining section of gravel, has resulted in a faster, safer drive with greater traffic flows.

The key objective of this paper is to highlight the great conservation significance of the vegetation communities along the Guyra-Ebor road. With the exception of a small section passing along the northern boundary of Cathedral Rock National Park, the roadside vegetation is unreserved and vulnerable to a number of threats. This paper gives brief details on all of the rare or threatened orchids known to occur along the road (to the author's knowledge) and discusses their conservation status. Exact localities of these rare taxa have been deliberately withheld although exploration by orchid enthusiasts and the broader botanical community will easily reveal many of their secrets. Only through a better understanding of their distribution, ecology, habitat preferences and threatening processes can these species be given a better chance of long-term survival.

Climatic, landscape and general vegetation features

The altitude along the Guyra-Ebor road varies from 1200 m to 1320 m above sea level and most winters usually see several light snowfalls across the area. The road traverses four broad geological formations: tertiary basalts, lower Permian metasediments, granodiorite and Round Mountain leucoadamellite (granite). The soils derived from these different parent materials support very different floras with the basaltic soils usually having grassy woodlands with a diverse herb layer while the coarser granitic soils support a more diverse shrub layer. Dominant tree species on the basalt are usually Snow Gum (*Eucalyptus pauciflora*), Black Sally (*E. stellulata*) and Manna Gum (*E. viminalis*) while the shrubby communities on granite are often dominated by peppermint species such as *E. radiata*, *E. nova-anglica* and *E. acaciiformis*. The distribution of many of the ground orchids along the road also closely follow these geological patterns with most of the leek orchids (*Prasophyllum* spp.), for example, being restricted to the fertile clay loams on the basalt.

The species

Calochilus russeus – Jones (2004) recently described this species stating that it was known only from the type locality on granite along the Guyra-Ebor road. Recent searches of this area in early 2005 suggest that the species occurs as scattered individuals in relatively low numbers. Although partially conserved in Cathedral Rock National Park (Jones 2004), this species should still be considered threatened in the long term due to its small population size and its highly restricted distribution.

Corunastylis sp. aff. *archeri* – Variation within the *Corunastylis archeri* complex (also known as *Genoplesium archeri*) has been discussed by Bishop (1996; 2000) who states that plants from the New England Tableland are "readily distinguishable". Even within this region there are potentially several taxa as plants from west of Armidale (Teatree Creek) flower in autumn while plants along the Guyra-Ebor road usually flower from mid November to late December. A population from Booroolong Nature Reserve (north-west of Armidale) appears to differ again. For the purposes of this article I have chosen to regard the Guyra-Ebor road population as a distinct species although more thorough research is clearly needed to test this hypothesis. Plants in the study area grow on a particularly coarse substrate adjacent to swampy areas on granite. Their lateral sepals usually point upwards at 45° as opposed to horizontally as suggested for this species complex by Bishop (1996; 2000). At least one population is reserved in the nearby Cathedral Rock National Park.

Diplodium metcalfei – Also known as *Pterostylis metcalfei*, this species was described by Jones (1997) and originally treated by Bishop (1996) as a new species with affinities to *Pterostylis russellii*. It is common at Ebor Falls (within 500 m of the Guyra-Ebor road) and is also known from south of the road at Wongwibinda. It is quite possible that this rare greenhood may also grow adjacent to the Guyra-Ebor road.

Diuris pedunculata – Although this rarely seen orchid has a widespread distribution it has declined in recent years due mainly to loss of suitable habitat (Jones 1993; Bishop 2000). Briggs & Leigh (1996) have classified it as endangered and it is currently listed as a Schedule 1 species (endangered) on the *NSW Threatened Species Conservation Act* 1995. Rouse (2003), when providing a summary of the known distribution of the species, concluded that it now survives at only four or five sites. Field observations by John Riley and Ron Tunstall, however, suggest that there are probably additional populations of species which have not been vouchered and are thus poorly documented.

Two recently discovered populations along the Guyra-Ebor road total at least 500 individuals over an area of approximately two hectares. One of these is easily the largest extant population known in northern NSW and as such is highly significant. Both populations occur in open, grassy areas on fertile basaltic soils.

Diuris sp. aff. *alba* (New England Swamps) – This tall, colourful species is relatively common in granitic swamps from Backwater in the north to near Wollomombi in the south. It was recognised by Bishop (1996; 2000) as a distinct species although at the time it was thought to be far more restricted in its distribution. It occurs in at least one swamp along the Guyra-Ebor road close to the type locality of *Calochilus russeus*.

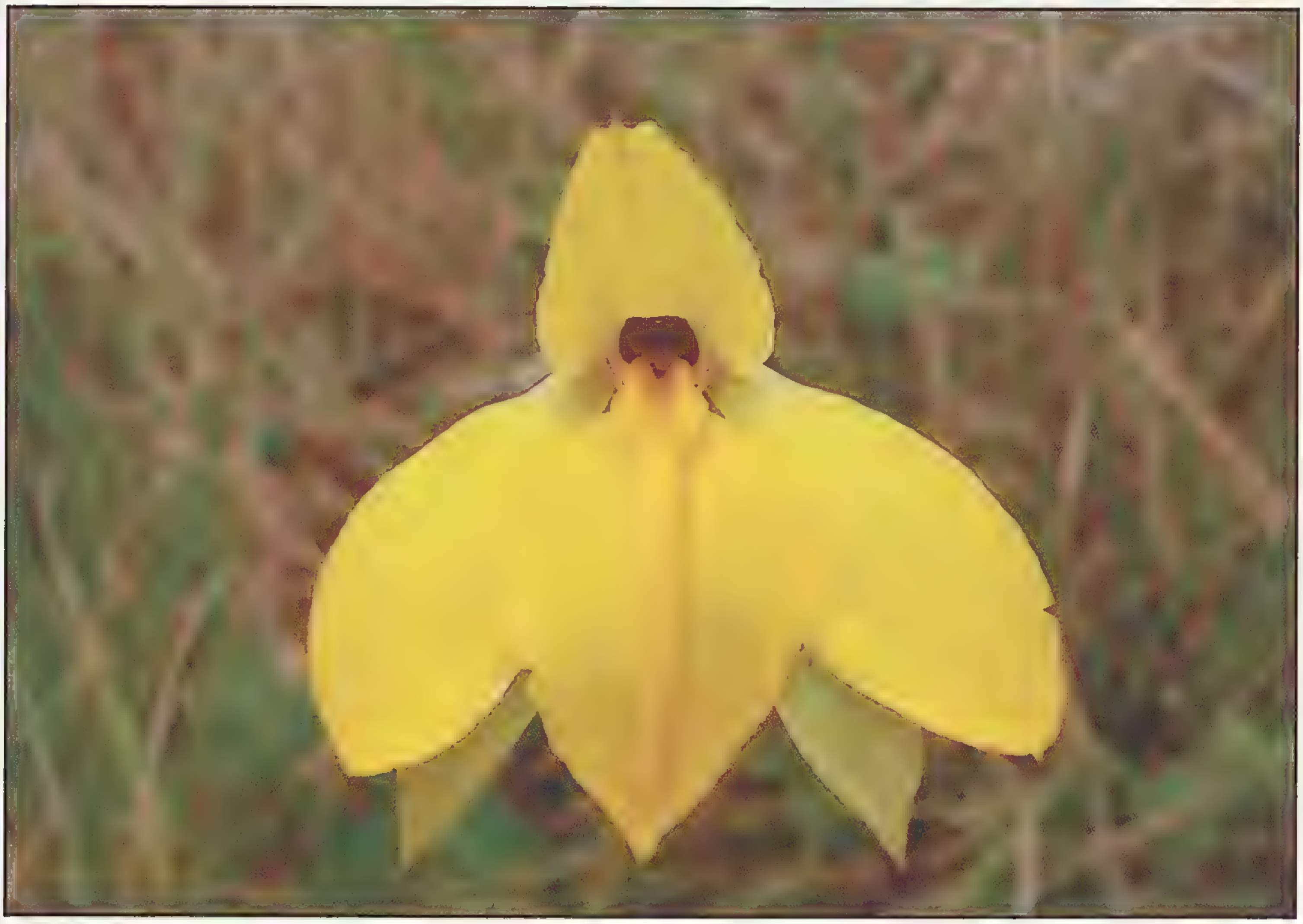
Diuris sp. aff. *dendrobioides* (Guyra) – The *D. punctata/dendrobioides* complex appears to contain a multitude of species, many of which are poorly known and often difficult to distinguish. Although Bishop (1996; 2000) was unaware of this species David Jones of the Australian National Herbarium at Canberra believes the plants near Guyra to be a distinct taxon. The author has seen just one small population of this attractive species growing in a grassland dominated by native species such as Kangaroo grass (*Themeda australis*), Snow grass (*Poa sieberiana*), Red grass (*Bothriochloa macra*) and a rare species of bluegrass (*Dicanthium setosum*).

Diuris sp. aff. *dendrobioides* (Ebor) – This large-flowered donkey orchid appears to differ from more typical *D. dendrobioides* on the Northern Tablelands by its larger, more uniformly coloured flowers. It also flowers several weeks later than *D. dendrobioides* although this may be due to the higher altitude at which it grows (c.1300 m). It tends to flower 4-6 weeks later than the new species discussed in the previous paragraph. As far as I am aware it is known from just a single population near Ebor where it grows in open grassland over basalt.

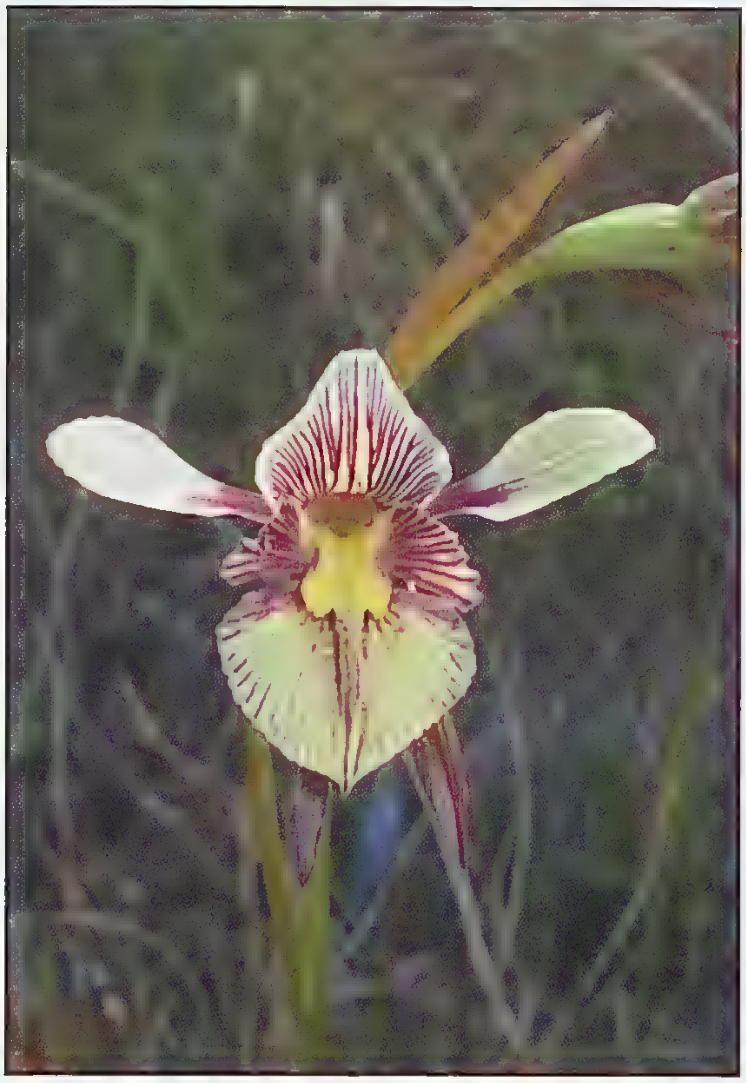
Diuris sp. aff. *ochroma* – This attractive species is currently known from five populations in the Ebor and Backwater districts. In the study area it grows in grassy areas on rich basaltic soils close to Ebor. Although formerly included by Jones (1993) as a form of *D. venosa* it is in fact quite distinct and was recognised as such by Bishop (1996; 2000). It is likely to be formally described as a new species in a forthcoming revision of the *Diuris ochroma* complex (D.L. Jones pers. comm.). A small population of this attractive species is reserved near Point Lookout in the nearby New England National Park.

Prasophyllum caudiculum – This rare leek orchid was described by Jones (2000) but was also highlighted by Bishop (1996) under the name of *P.* sp. aff. *fuscum* (Guyra Late Spring). The species is known from a handful of sites around Ben Lomond, Backwater and along the Guyra-Ebor road. Here it grows sympatrically (in the same place) with *Diuris* sp. aff. *dendrobioides* (Guyra), *Prasophyllum dossenum* and *P. solstitium*. The total number of plants at all of these sites is relatively low and I agree with the assessment of Jones (2000) that the species is endangered.

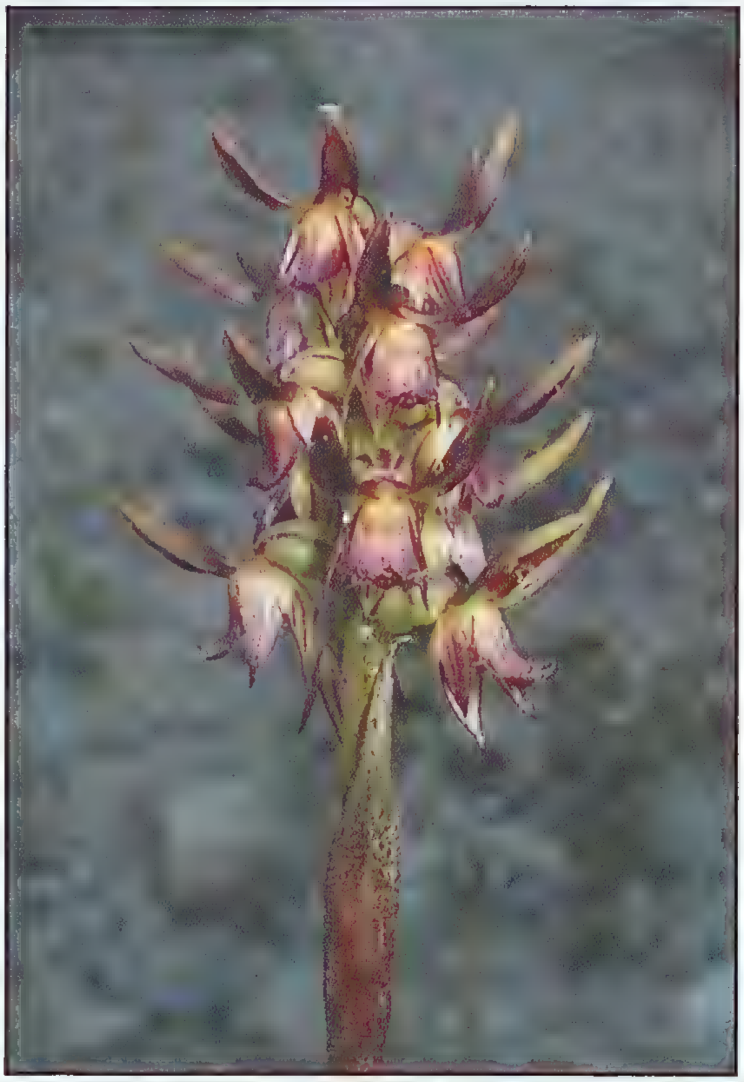
Prasophyllum dossenum – Described by Jones (1991), illustrated in Bernhardt & Rowe (1993)



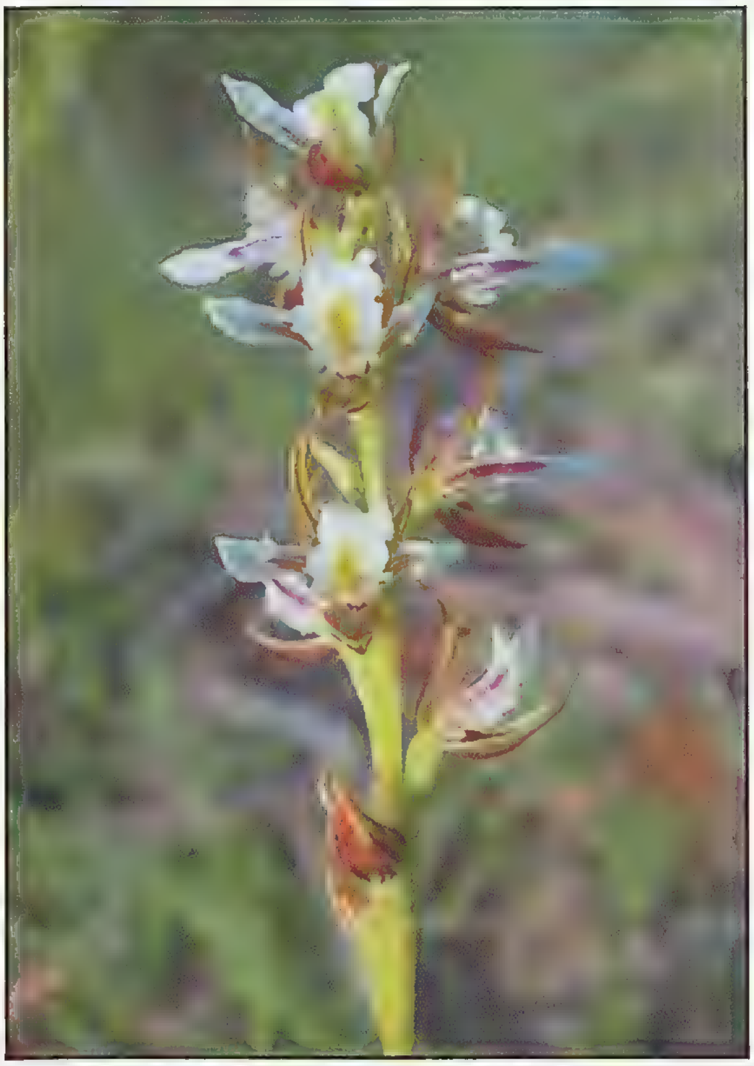
Diuris pedunculata



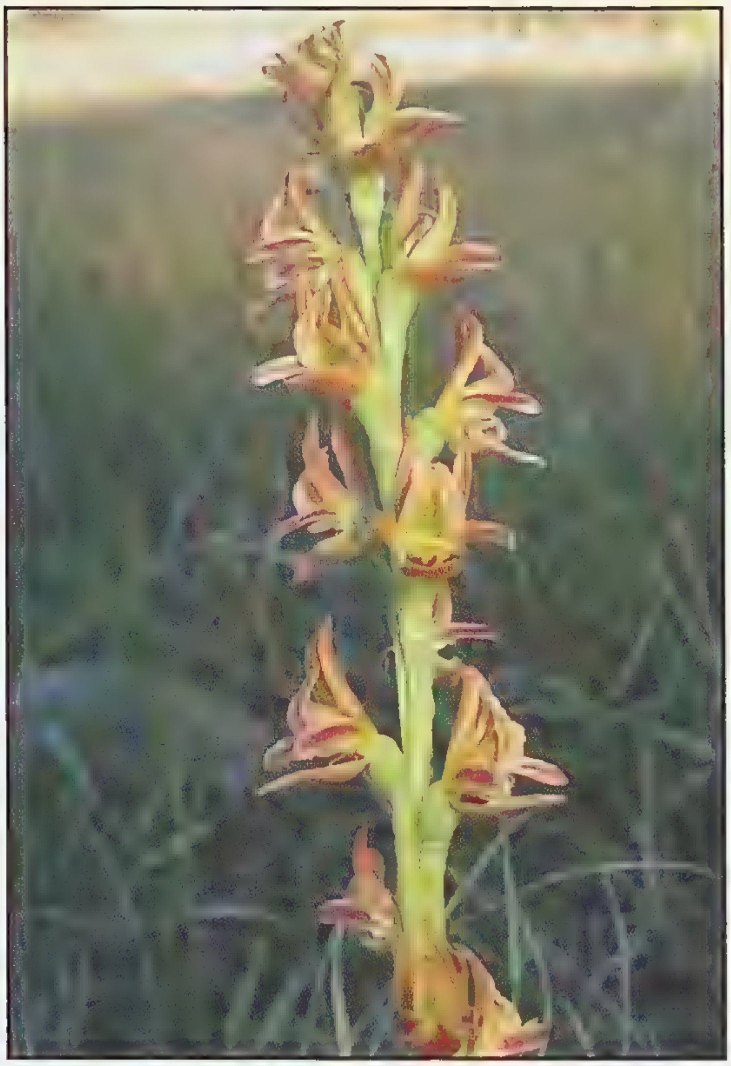
Diuris sp. aff. *ochroma*



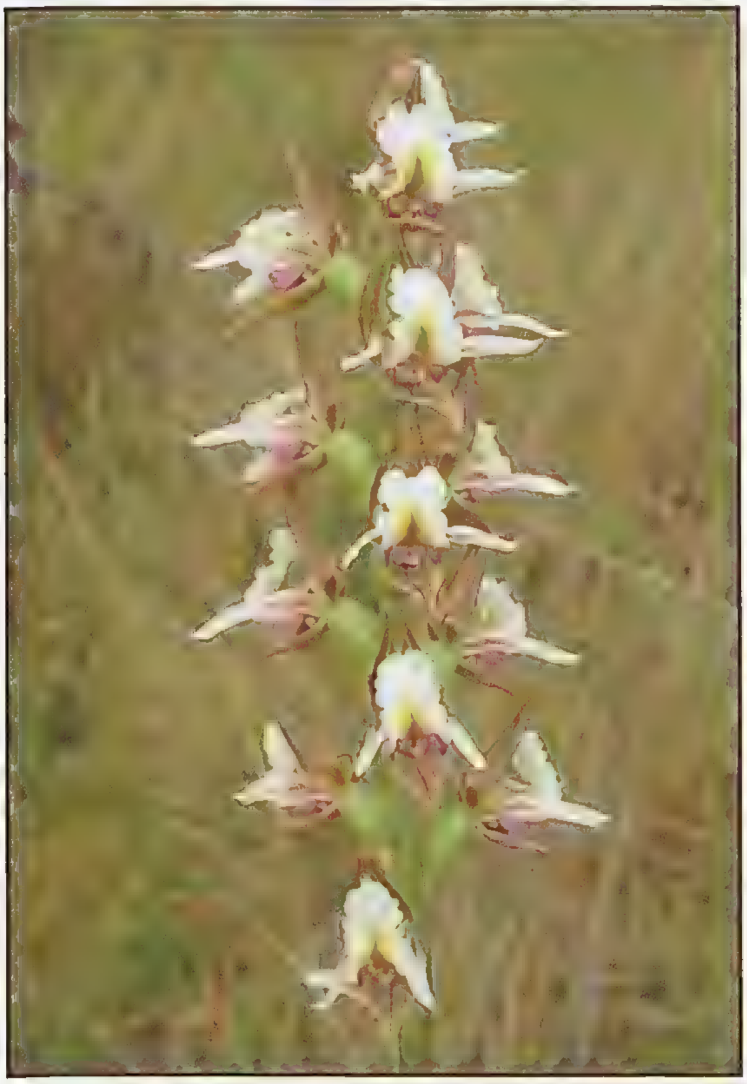
Corunastylis sp. aff. *archeri* (*Genoplesium archeri*)



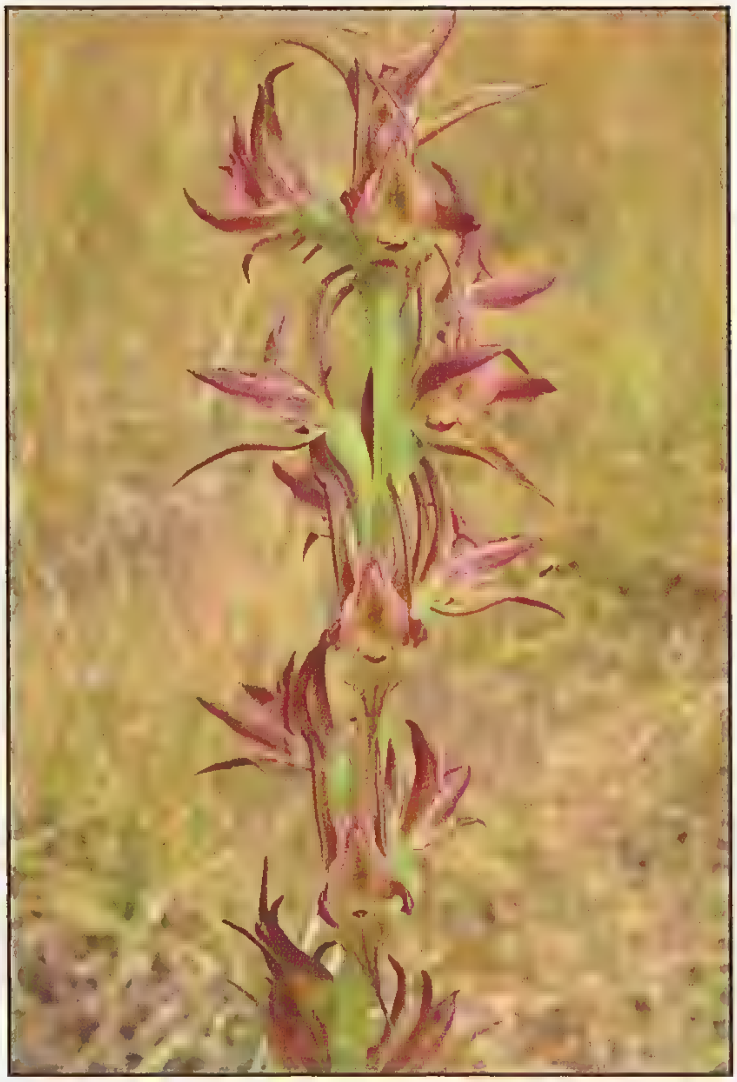
Prasophyllum sp. aff. *odoratum* (NT granite)



Prasophyllum caudiculum



Prasophyllum dossenum



Prasophyllum solstitium

Photos Lachlan Copeland

and Bishop (1996; 2000), this is probably one of the better known of the narrow endemics along the Guyra-Ebor road. It is considered rare by Briggs & Leigh (1996). I have seen it at four widely spaced localities along the road, always amongst native grasses on the chocolate soils derived from basalt. Contrary to the "scant morphological variation" discussed by Jones (1991, p. 78), this species, in the author's experience, can be quite variable both in terms of the colour of the petals, spacing of the flowers, plant height and number of flowers per inflorescence. Recent collections of the more colourful, taller plants along the eastern half of the road may represent a new species closely allied to *P. dossenum* s.s. (*sensu stricto* - in the narrow sense) (D.L. Jones pers. comm.). Both forms or taxa, however, can be easily distinguished from other leek orchids in the area by the prominent hump at the base of the labellum and the lateral sepals.

Prasophyllum solstitium – This attractive leek orchid was recently described by Jones (2000) and was also recognised by Bishop (1996; 2000) as a new species under the name of *P.* sp. aff. *fuscum* (Guyra Summer). Jones (2000) believed it to be known from a single population although a second population some 3 km from the type locality has been recently discovered along the Guyra-Ebor road. The total number of plants from both populations appears to be around 150. It also shares the same habitat as *Diuris* sp. aff. *dendrobioides* (Guyra), *Prasophyllum caudiculum* and *P. dossenum*. With its bright, variable colours, tall statue and particularly strongly fragrant flowers, this species is surely one of our most beautiful native orchids. It is also highly endangered.

Prasophyllum sp. aff. *odoratum* – The *P. odoratum* complex consists of a number of closely related species that are difficult to distinguish and the group is clearly in need of revision (Bernhardt & Rowe 1993; Bishop 2000). In a report summarising the species complex in greater Victoria, Rouse (2002) recognised 15 taxa within the complex for that region alone. A small population of a leek orchid broadly fitting *P. odoratum* s.l. (*sensu lato* - in the broad sense) grows on the Round Mountain leucoadamellite (coarse-textured granite) along the Guyra-Ebor road. It appears to differ from another *Prasophyllum* in the *odoratum* complex that grows nearby in New England National Park. The plants in the study area have more closely spaced flowers with a conspicuous raised yellow callus plate on the labellum and the granitic substrate is markedly different from the rich basaltic soils found in New England National Park. From my experience the granitic species appears to flower more profusely after fire.

Other species of interest along the Guyra-Ebor road

The author has encountered a number of other orchids along the road which are somewhat more common and widespread. These include *Microtis unifolia* s.l., *Dipodium roseum*, *Diuris minor*, *D. chryseopsis*, *D. chrysantha*, *D. abbreviata*, *Calochilus gracillimus* s.l., *Eriochilus cucullatus* s.l., *Thelymitra pauciflora* s.s., *T. ixioides* and *Microtis oblonga*. The last species is relatively uncommon on the Northern Tablelands. No doubt other species such as *Spiranthes australis*, *Caladenia* spp., *Chiloglottis* spp., *Pterostylis* s.l. spp. would also occur along the road, particularly in the wetter, granitic areas close to Ebor. I have seen herbarium specimens of *Prasophyllum flavum* and *P. brevilabre* collected from the road as well. That makes at least six leek orchids recorded from the study area to date.

Recent discussions with Peter Metcalfe, John Riley, Ron Tunstall and Bill Holzinger have revealed that *Corunastylis nuda* (syn. *Genoplesium nudum*), *Thelymitra cyanea*, an unusually dark form of *Orthoceras strictum*, a potentially new species of *Oligochaetochilus* ('rufa' greenhood) and a distinct form of *Hymenochilus cycnocephalus* (syn. *Pterostylis cycnocephala*) have also been found along the road. The latter three taxa are likely to be of high conservation significance too but will not be discussed any further in this paper. I am yet to see these interesting orchids for myself and am therefore unable to give any more specific details.

There are also a number of other rare vascular plants (non-Orchidaceae) of conservation significance along the road (*Thesium australe*, *Dicanthium setosum*, *Styphelia perileuca*, *Persoonia procumbens*, *Plantago* sp. nov., *Ajuga* sp. nov., etc.) but that is another story.

Threats and conservation significance

There are clearly a large number of plant species of high conservation significance occurring along the Guyra-Ebor road. At least two of these appear to be endemic to the road and are not known from anywhere else: *Prasophyllum solstitium* and *Plantago* sp. nov. The majority of the rare herbs are found only in the basaltic areas while the coarser soils derived from granite are home to a number of rare shrub species. Some areas of basalt are reserved in the nearby New England and Cathedral Rock National Parks but the natural grassland and frost hollow communities are very poorly represented anywhere in the reserve system. It would be heartening to see some of the species-rich grasslands close to Guyra reserved (or at least fenced off) but sadly there is still a perception that these grassy areas do not warrant as high a conservation priority as the wetter rainforest communities further east. The latter are, of course, well reserved in many National Parks along the Great Escarpment.

The fascinating areas of native grassland close to Guyra are under serious threat from the invasive weed Oxeye Daisy (*Leucanthemum vulgare*). In late spring and summer much of the ground is a carpet of white and one wonders how much longer it will be until all of the grasslands are chocked with this aggressive species. Weedy grasses such as Coolatai Grass (*Hyparrhenia hirta*) and African Lovegrass (*Eragrostis curvula*), both so dominant in grassy areas further to the west, are also established along the Guyra-Ebor road but perhaps are not quite as competitive at the higher altitudes. Grazing pressure from cattle and sheep, particularly during drier seasons such as we have recently experienced, is another obvious threat. Inappropriate fire regimes may also be considered a threatening process, particularly in the shrubby communities on granite. These shrubby areas often carry a high fuel load and have been burnt at least twice in the last 10 years. Exactly what constitutes an unfavourable fire regime is still poorly understood, however, with some species (e.g. *Prasophyllum* sp. aff. *odoratum*) probably benefiting from frequent, low-intensity fires more than most other species.

Discussions with Mr Peter Metcalfe of the NSW National Parks & Wildlife Service (NPWS) suggest that there may be some scope to better protect the more sensitive areas in the future. Liaison with the relevant stakeholders such as adjacent landholders, NPWS, the Guyra Shire Council, the Rural Lands Protection Board and the Roads and Traffic Authority may ultimately yield more effective conservation outcomes.

Acknowledgments

I would like to thank David Jones for assistance in identifying some of the above mentioned taxa and for numerous discussions regarding rare orchids in the area. Ron Tunstall, John Riley and Peter Metcalfe were also a useful source of information and their advice is greatly appreciated. Bill Holzinger proofread the manuscript and assisted in the field. An anonymous referee also gave useful feedback and their suggested changes greatly improved the readability of the text.

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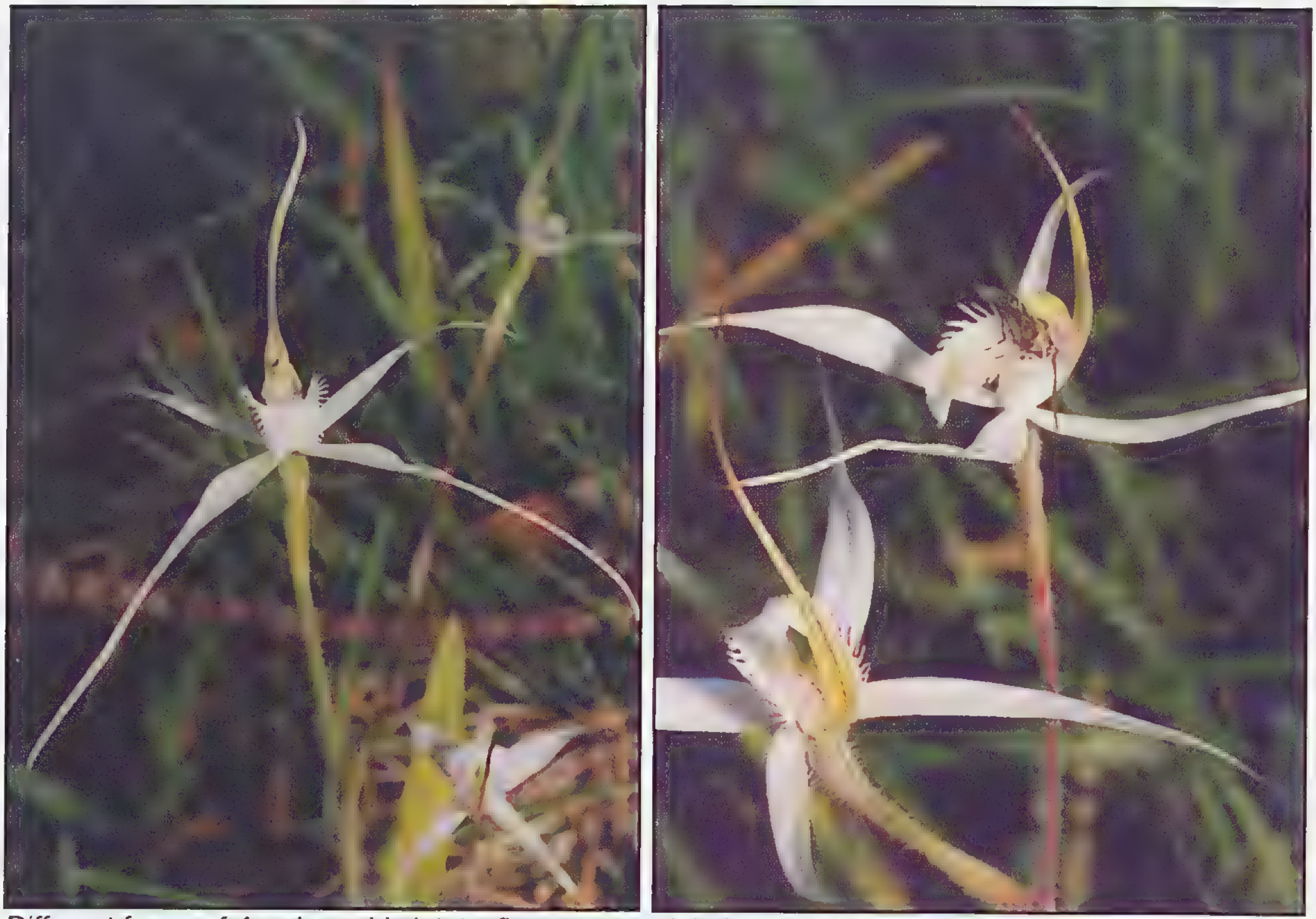
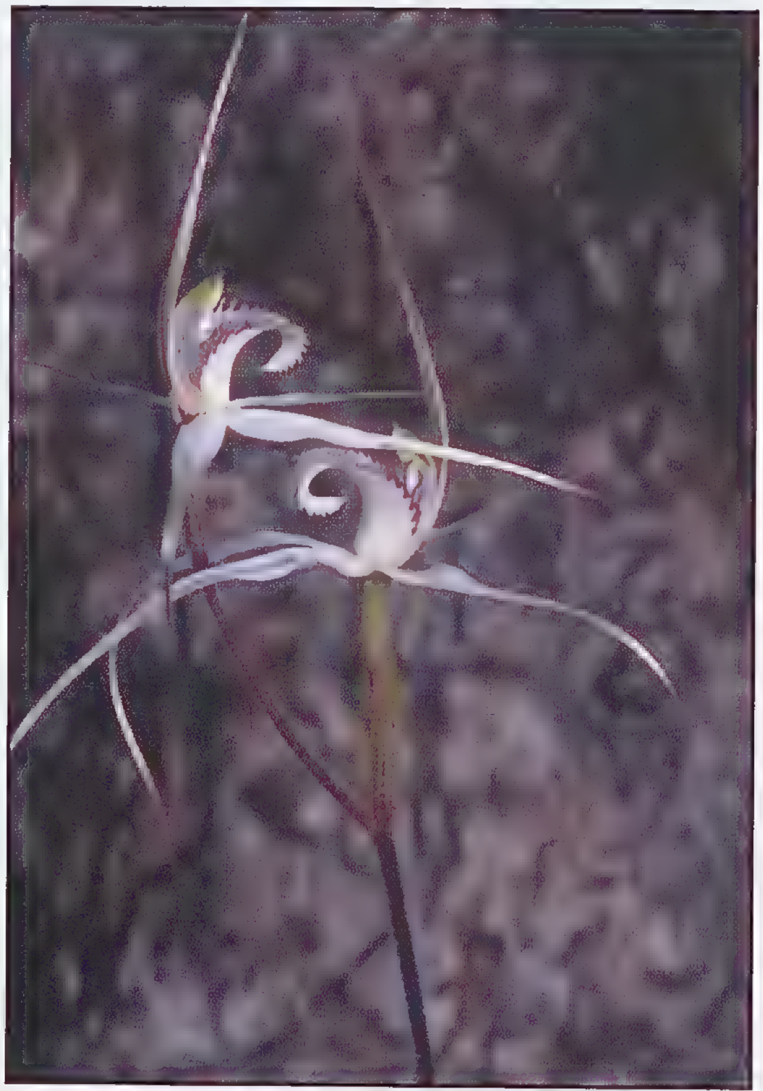


Different forms of *Arachnorchis intuta*, flower at top right has a pollinator insect.



Photos Malcolm Houston

Arachnorchis intuta (Orchidaceae), a critically endangered new species from South Australia.

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Abstract

Arachnorchis intuta, known only from a single small population on Yorke Peninsula, South Australia, and severely threatened by weed invasion, is described as new and compared with *A. brumalis*. Notes on habitat, threats and ecology are included.

Key words

Orchidaceae, *Arachnorchis intuta*, *A. brumalis*, critically endangered, new species, Australian flora, South Australia.

Introduction

Studies have begun into the Orchidaceae of South Australia with a view to producing a review of this group for the state. Field trips to various localities have revealed a number of undescribed taxa, some of which have been reduced to relict populations and must be considered to be threatened. About four years ago the plight of a species of Spider Orchid restricted to a very small area on the Lower Yorke Peninsula was brought to my attention by Bob Bates and Ken Bayley. Subsequent visits to the site confirmed their view that the species is in a parlous state and in urgent need of conservation measures. This view was supported by a recent letter received from the Threatened Plant Action Group in Adelaide requesting formal description and naming of the species so that conservation measures can be implemented. That species is here described as new.

Taxonomy

Arachnorchis intuta D.L.Jones, sp. nov., affinis *A. brumali* (D.L.Jones) D.L.Jones & M.A.Clem. sed florenti superiore; floribus minoribus; sepalis et petalis lateralis patentibus rigide, apicibus vel exilis filamentosis vel in osmophorum indistinctum nigricans tumidis, differt.

Typus: South Australia. Near Hardwicke, Yorke Peninsula, 2 Sep. 1999, *D.L.Jones 16648* & *M.Garratt* (holo CANB; iso AD, MEL, NSW).

Hirsute terrestrial *herb* growing singly or in small loose groups. *Leaf* narrowly lanceolate, 8-15 cm long, 0.5-1.1 cm wide, dull green; base purple-blotched; trichomes dense on both surfaces, to 4 mm long, patent, transparent, eglandular. *Scape* 10-35 cm tall, wiry, densely hirsute, with transparent, eglandular trichomes to 5 mm long. *Sterile bracts* spreading, oblong to oblong-lanceolate, 15-22 mm long, 3-4 mm wide, acute to acuminate, involute, externally hirsute. *Floral bracts* closely sheathing, narrowly ovate-lanceolate, 12-17 mm long, 4-7 mm wide, acute to acuminate, externally shortly hirsute. *Flowers* 1 or 2, 4.5-6.5 cm across, white, sometimes with faint reddish medial lines, the sepals with short dark caudae which are sometimes developed into dark, narrow, often imperfectly formed osmophores; petals with short dark caudae; labellum white to cream, with white or purplish calli; column translucent with reddish markings. Dorsal sepal erect; lateral sepals widely divergent, stiffly spreading; petals stiffly spreading. *Dorsal sepal* 32-40 mm long, 2.5-3 mm wide, oblong-elliptic in the proximal half then tapered to a short, blackish, glandular cauda to 15 mm long and c. 0.8 mm wide; sometimes developed into an obscure blackish osmophore 8-12 mm long. *Lateral sepals* 32-40 mm long, 4.5-6 mm wide, lanceolate in the proximal half, then tapered to blackish caudae or obscure osmophores as in the dorsal sepal. *Petals* 27-35 mm long, 2-3 mm wide, lanceolate in proximal third, tapered to blackish, glandular caudae, rarely a small, apical club-like aggregation of glands. *Labellum* articulated on a short claw c. 0.6 mm long, c. 2.2 mm wide. *Lamina* obscurely three-lobed, broadly ovate-lanceolate in outline when flattened, 13-16 mm long, 7-11 mm wide, erect in the proximal third then curved forwards; apex strongly recurved. Lateral lobes c. 3 mm across, suberect to erect; margins with 7-10 pairs of calli to 3 mm long; marginal calli linear, widely spreading, straight, head narrowly clavate, outer face white or purplish. Mid-lobe ovate-deltate in outline when flattened, obtuse, the margins with numerous short, blunt white or purplish teeth, decrescent towards the apex. *Lamina calli* in four rows, extending well onto the mid-lobe, white to purplish, most calli prominently stalked but those towards the apex sessile and irregularly arranged. Basal calli 6-8, crowded, c. 1 mm long, white, stalked, erect; head swollen, linear-clavate. Longest lamina calli c. 2 mm long, hockey-stick-shaped, stalked; head c. 0.7 mm long, curved when viewed from the side, narrowly linear-tapered from above. *Column* 11-13 mm long, 5-6 mm wide, recurved in the proximal third then incurved; basal glands widely separated, oblong-ovoid, c. 0.7 mm long, c. 0.4 mm wide, yellow. *Anther* c. 2.3 mm long, c. 2.2 mm wide, burgundy; rostrum linear, c. 0.3 mm long. *Pollinia* four, c. 2 mm long, boomerang-shaped, flat, yellow, mealy. *Stigma* c. 2 mm wide, elliptic, sunken. *Capsule* obovoid, 9-11 mm long, 4-6 mm wide, green, glandular. **Fig. X**

Distribution and Ecology

Restricted to a small area near Hardwicke on Yorke Peninsula, South Australia, where it grows in disturbed relict woodland dominated by *Allocasuarina verticillata* and *Eucalyptus porosa*. This site is being invaded by exotic grasses and other weeds, particularly bridal creeper and freesia. The soil is a red sandy loam. Altitude: c. 20 m. Flowering period: August and September.

Notes

This species is an early-flowering, small-flowered, cream to white spider orchid with stiffly spreading tepals, the sepals having either short, blackish caudae or the apical part is thickened into an obscure blackish osmophore. It is apparently allied to *Arachnorchis brumalis* (D.L.Jones) D.L.Jones & M.A.Clements but that species has larger flowers with longer, relatively thick, heavily glandular caudae which are not developed into thickened osmophores. *Arachnorchis rigida* (R.S.Rogers) D.L.Jones & M.A.Clements is somewhat similar but is readily distinguished by its thick, black, densely glandular sepaline osmophores.

The exact location of the type locality has been kept obscure to protect the species from illegal activities. This locality is well known to orchid enthusiasts and at both times I visited the site there was substantial evidence of orchid plants having been illegally dug. The flowers of this species are insect-pollinated and the pollinating vector is still active in the locality since a significant number of capsules are formed.

Conservation Status

Critically endangered and not conserved. I suggest the conservation code of 2E according to Briggs & Leigh (1996).

Etymology

Derived from the Latin *intutus*, unguarded, defenceless, endangered; in reference to the perilous situation to which this species has been reduced.

Other Specimens Examined

South Australia. Near Hardwicke, Yorke Peninsula, 23 Aug. 1999, *K.Bayley* (CANB); *ibid*, 3 Sep. 2000, D.L.Jones 17218 & M.Garratt (CANB).

Acknowledgements

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Notes on Papuasian Orchids.

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ABSTRACT.

Studies of various Papuasian orchids in both the fields of nomenclature and taxonomy have revealed that a number of corrections are necessary. Two new names are proposed in *Bulbophyllum,* viz. *B. aundense* and *B. erythrostictum*. The combination *Dockrillia chordiformis* is validated. Notes are supplied on the synonymy of two species of *Eria* and *Liparis.*

The rich orchid flora of New Guinea with about 2,800 species remains comparatively understudied in modern times. There undoubtedly remains many species to be described in such genera as *Appendicula* Blume (currently 44 species), *Bulbophyllum* Thouars (580 species), *Ceratostylis* Blume (70 species), *Dendrobium* Sw. (412 species), *Diplocaulobium* Krzl. (70 species), *Oberonia* Lindl. (90 species), *Phreatia* Lindl. (131 species) and *Taeniophyllum* Blume (92 species).
This paper deals with a few small nomenclatural matters and the synonymy of two other taxa. One of these taxa, *Eria montana* Schltr. is newly recognised as occurring in Australia.

Bulbophyllum Thouars
This is the largest Papuasian orchid genus when considered to include *Hapalochilus* (Schltr.) Senghas. It contains about 580 species placed in about 38 sections.

Bulbophyllum aundense Ormd., nom. nov.
Basionym: *Bulbophyllum barbatum* van Royen, Alp. Fl. New Guin. 2:211, fig.76, 1979 [*non* Barb. Rodr. 1882].
Type: Papua New Guinea - Eastern Highlands Prov.,Mt. Wilhelm, Lake Aunde, 3560m, 28 May 1965, *van Balgooy 508* (holotype: CANB, isotype: K!).
Distribution: Papua New Guinea.
Notes: A new name is proposed for this taxon due to the prior existence of a Brazilian *B. barbatum* Barb. Rodr. from 1882. Van Royen (1979) placed his *B. barbatum* in section *Schlechteria* (based on section *Micromonanthe* Schltr.) but the pendent habit, short inflorescences, somewhat urceolate flowers and lip with a shortly villose underside are more consistant with placement in section *Fruticicola* Schltr.

Bulbophyllum erythrostictum Ormd., nom. nov.
Basionym: *Bulbophyllum polystictum* Schltr., Fedde Rep., Beih. 1:838, 1913 [*non* Ridl. 1909].
Type: Papua New Guinea – Kelel, 600 m, September 1907, *Schlechter 16505* (holotype: B, destroyed).
Distribution: Papua New Guinea.
Notes: The name *B. polystictum* had already been used by Ridley in 1909 for an entity in section *Sestochilus* (Breda) Benth. & Hook.f. from Peninsula Malaysia. It is therefore necessary to rename the Papuasian plant which belongs in section *Fruticicola* Schltr.

Bulbophyllum intersitum J.J.Verm. Orch. Monogr. 7:161, fig.114, Pl.5D, 1993.
Synonyms: *Peltopus intersitus* (J.J.Verm.) Szlach. & Marg., Pol. Bot. J. 46, 2:115, 2001.
Type: New Guinea - data not cited, *Jongejan 795* (holotype: L).
Bulbophyllum triaristella Schltr., Fedde Rep., Beih. 1:786, 1913 [*non* Krzl. & Schltr. 1908]. *syn. nov.*
Type: Papua New Guinea - Bismarck Ra., 1800 m, November 1908, *Schlechter 18586* (holotype: B, destroyed).
Distribution: Papua New Guinea.
Notes: Vermeulen (1993) overlooked *B. triaristella* Schltr. when revising section *Peltopus* Schltr., probably because Schlechter (1913) placed it in section *Micromonanthe* Schltr. I consider *B. triaristella* to be conspecific with the more recently published, *B. intersitum* but the latter name stands since there is an earlier *B. triaristella* Krzl. & Schltr., named in 1908 from Africa.

Dockrillia Brieger
About twenty-five species may be assigned to this concept depending on one's views regarding generic and specific limits. The species are distributed from Timor to Tahiti

with most occurring in eastern Australia and with one extending to Tasmania. In New Guinea at least nine species can be found.

Dockrillia chordiformis (Krzl.) Raushert ex Ormd., comb. nov.
Basionym: *Dendrobium chordiforme* Krzl., Pflanzenr. 45:292, 1910.
Type: Papua New Guinea – Sattelberg, 22-26 July 1890, *Lauterbach 484* (holotype: B, destroyed, lectotype: WRSL, isolectotype: HBG).
Distribution: Indonesia (Papua); Papua New Guinea.
Notes: The name *Dendrobium chordiforme* was first mentioned without description by Kraenzlin (1901) and later validly published by him in 1910. Rauschert (1983) cites the 1901 *nomen nudum* as the basionym for *Dockrillia chordiformis*, making his combination invalid. The combination is here validated with the correct basionym.

Eria Lindl.
In the traditional sense this genus has about forty-six known species in New Guinea which are placed in nine sections. Four of these taxa are shared with Australia including the one discussed below.

Eria montana Schltr., Fedde Rep. 16:116, 1919.
Basionym: *Eria oreogena* Schltr., Fedde Rep., Beih. 1:667, 1912 [*non* Schltr. 1911].
Synonyms: *Eria takadui* Schltr., Bot. Jahrb. 58: 124, 1923. *nom. superfl.*
Type: Papua New Guinea - Torricelli Ra., 800 m, September 1908, *Schlechter 20170* (holotype: B, destroyed, isotypes: G!, L, S!).
Eria singulifolia Schltr., Fedde Rep. 16:116, 1919. *syn. nov.*
Type: Papua New Guinea - hinterland in from Angriffshafen [Vanimo], *Kempter s.n.* (holotype: B, destroyed).
Eria intermedia Dockr., Austral. Pl. 3:120, fig., 1965. *syn. nov.*
Type: Australia - NE Queensland, Whitfield Ra., 26 December 1961, *Dockrill s.n.* (holotype: BRI!).
Eria dischorensis auct. non Schltr.: Dockr., Austral. Indig. Orch., ed. 1:518, fig., 1969; Austral. Indig. Orch., ed. 2, 1:320, fig., 1992; D.L. Jones, Nat. Orch. Austral.:598, 1988; M.A. Clements, Austral. Orch. Res. 1:76, 1989.
Distribution: Papua New Guinea; Australia (NE Queensland).
Specimen examined: Papua New Guinea – Boridi, 1125m, 8 September 1935, *Carr 10267* (AMES x2, BM).
Notes: Dockrill (1969) reduced his *E. intermedia* to *E. dischorensis* Schltr. which appeared to have the same obcuneate lip as the latter species. However study of the type of *E. intermedia* shows that the lip is not obcuneate but somewhat obovate-rhombic just as in *E. montana* Schltr. Since Dockrill's figure of *E. intermedia* is drawn from live material it is likely the lip appeared obcuneate from above due to the moderately decurved midlobe.
In Australia *E. montana* is known from a single collection (the type of *E. intermedia*). Lavarack (1980) mentions a record from the McIlwraith Range but this is unvouchered and should be deleted. Material of the *E. montana* group is rather scarce in herbaria and more collections would certainly be desirable to assess variation.
Carr's specimen from Boridi is the only additional Papuasian one that I have been able to locate. He says that it has yellow sepals and petals, the sepals with four lines of brown-purple spots, the petals laxly speckled brown-purple, the lip pale yellow with two claret lines but the base of the keels and sidelobes speckled brown-purple, the midlobe shiny claret with a yellow apex and the column yellow with the foot speckled brown-purple.
I have added *E. singulifolia* Schltr. to the synonymy too since its description seems to include all the characters of *E. montana*. The only other one-leaved taxa that appear to be closely related to *E. montana* are *E. dischorensis* Schltr. from Papua New Guinea and *E. punctata* J.J.Sm. from Malaysia (Malay peninsula and Sarawak) and Indonesia (Java and Sumatra).

Liparis L.C. Rich.
In the broad sense this genus contains about seventy-seven species in New Guinea placed in eleven sections. The species dealt with below is a member of section *Liparis* which contains primarily terrestrial taxa with thin leaves lacking abscission zones..

Liparis barbata Lindl., Gen. Sp. Orch. Pl.:27, 1830.

Synonyms: *Leptorkis barbata* (Lindl.) O.Kze., Rev. Gen. Pl. 2:671, 1891.
Type: Sri Lanka - November 1829, *Macrae 6* (holotype: K-L!).
Liparis pectinata Ridl., J. Linn. Soc., Bot. 22: 277,1886. *syn. nov.*
Leptorkis pectinata (Ridl.) O.Kze., Rev. Gen. Pl. 2:671, 1891.
Type: Philippines - *Cuming s.n.* (holotype: K-L!).
Liparis wrayi Hook.f., Fl. Brit. Ind. 6:181, 1890. *syn. nov.*
Leptorkis wrayi (Hook.f.) O.Kze., Rev. Gen. Pl. 2:671, 1891.
Type: Peninsula Malaysia - upper Perak, 90m, June 1889, *Wray 3713* (holotype: K!).
Liparis pectinifera Ridl., J. Bot. 36:210, 1898.
Type: Peninsula Malaysia - S Perak, Dindings, Gunung Tungul, *Ridley s.n.* (holotype: SING, photo.!).
Liparis punctifera Schltr., Fedde Rep. 10: 27,1910. *syn. nov.*
Type: Indonesia – Sulawesi, near Toli-Toli, 700 m, January 1910, *Schlechter 20718* (holotype: B, destroyed).
Liparis maboroensis Schltr., Fedde Rep., Beih. 1:186, 1911. *syn. nov.*
Type: Papua New Guinea - Maboro Ra., 1200 m, May 1909, *Schlechter 19891* (holotype: B, destroyed).
Liparis maboroensis var. *bistriata* J.J.Sm., in Gibbs, Contr. Phyt. Fl. Arfak Mts.:204, 1917. *syn. nov.*
Type: Indonesia – Papua, Manokwari, tract to Ambani, 245 m, *Gibbs 6187* (holotype: BM).
Liparis fimbriata A.F.G.Kerr, Bull. Misc. Inf. Kew:215, 1927.
Type: Thailand - Doi Sutep, 580 m, 26 July 1914, *Kerr 351* (holotype: K!).
Liparis alavensis Cribb & Whistler, Kew Bull. 59:321, fig.1, 2004. *syn. nov.*
Type: Samoa – Tutuila, Alava Ridge, 350 m, 2 May 2001, *Whistler 11494* (holotype: herb. Whistler).
Malaxis latifolia auct. non J.E.Sm.: Millar, Orch. Papua New Guin. intr.:88, 1978.
Distribution: Sri Lanka; S & NE India; Myanmar; Thailand; Malaysia; Brunei; Philippines; Taiwan; Indonesia; Papua New Guinea; Vanuatu; Samoa.

Notes: Seidenfaden (1976) kept *L. barbata* and *L. wrayi* separate on the basis that the former supposedly had two leaves (not three), shorter 1 mm long (not 3 mm long) floral bracts and a longer lip (10 vs. 6-8 mm long). These differences do not hold since the type of *L. barbata* has three leaves (the size of the third leaf depends on the vigour of the plant) and the floral bracts reach about 1.2 mm long (but are 2 mm long not 3 mm long in the type of *L. wrayi*). The lip length of 10 mm cited by Seidenfaden (1976) for *L. barbata* seems erroneous since the type is a small plant with only a few flowers of average size for the species.

Jayaweera (1981) misapplied the name *L. barbata* to a species of the bifoliate *L. wightiana* Thwaites group. He further included *L. thwaitesii* Hook.f. in the synonymy but this is a distinctive unifoliate species. I have not further persued the problems created by Jayaweera since it is unrelated to the true *L. barbata*.

Vanuatu is included in the distribution above based on a drawing in Kew after a collection made by Attie on Efate in March 1994. I am not sure if this particular record has been published.

Acknowledgements.

I wish to thank herbarium and library staff at AMES, BM, BRI and K for their hospitality during my visits. G and S kindly loaned material. J.J. Vermeulen generously assisted with specimens in SING.

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Roles for Tissue Culture Enthusiasts and Hobbyists in Modern Orchid Conservation

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Tissue culture of native Australian epiphytic orchids is quite common in the eastern states both at a hobbyist level and at a commercial level. Most frequent genera involved though are epiphytic orchids such as *Dockrillia*, *Dendrobium*, *Sarcochilus* and allied genera and *Cymbidium*.

The terrestrial, native orchids are another matter. I know only of work such as in Western Australia at King's Park and Botanic Gardens by Kingsley Dixon and associates. This is ground-breaking work. They have successfully cloned *Diuris*, at least from inflorescences. They are also seeking ways of reliably finding the mycorrhizal fungi needed to germinate the seeds of orchids, and hoping to find the means to effectively reintroduce or spread endangered native terrestrial orchids, back into their habitat so that they will become self-maintaining. In Victoria there is an interesting situation where tissue culture based work is being carried out both at government and at hobbyist level with a level of cooperation between the two groups. The hobbyist level is quite extensive and well organised with numerous people utilising and working together at the one private household laboratory. Information sharing and research is playing a major role in their successes. There is also some work at a government level in extracting and using mycorrhiza to germinate and maintain their rare and endangered orchids but not as extensively as in Western Australia.

In South Australia I know only of Les Nesbitt and Peter McCauley and myself working with Australian native terrestrial orchids as hobbyists and realise there is some activity at a mycorrhizal level within University South Australia, by Sophie Petit. There may be others that I am not aware of. I am also aware that there is some activity in extracting mycorrhiza in New South Wales and assume that there are some attempts to do symbiotic germination and growth of their terrestrial orchids, and one could assume that the Canberra Botanic Gardens may still be active in the field too.

From my business dealings in supplying tissue culture media and my associations with interstate terrestrial growers, it is apparent that there are numbers of very active hobbyists growing terrestrial orchid species and hybrids that have been obtained from tuber banks, rescue digs and from seed raised and flask raised material.

From The Brink of Extinction

Recently in New South Wales, a new species, namely *Pterostylis hians*, was seen and recognised as undescribed. Accordingly specimens were taken for herbarium collection, artist drawing, study and description by David Jones. A small amount of the material used for artist drawings was then distributed to extremely competent hobbyists such as Helen Richards in Victoria and some individuals in New South Wales. This was a fateful event as a bush fire raged through the habitat area and *P. hians* has not been seen in the wild since. Helen Richards sent seed from her plants to me. They were duly sown and germinated and have grown very well and have even flowered in flask. They do well and make quite large tubers in the flasks. I have been encouraging those growers with plants of *P. hians* in New South Wales to interbreed with their specimens to maximise the gene pool in the seedlings that we will raise in flask. I had no idea at the time of original sowing that the species was extinct apart from captive plants. There is a lesson to be taken from that set of circumstances – *P. hians* would be absolutely extinct except from a few maintained specimens. We have just sent quite a number of flasks back for return to the wild and to extend captive plant numbers and I plan to breed with the flask raised seedlings too.

In Victoria, *Diuris fragrantissima*, once commonly known as 'Snow in the Paddocks', later officially named *Diuris punctata* var. *albo-violaceae*, then *D. fragrantissima*, was once extremely common in what has since become suburban Melbourne. Its range was the Keilor plains from 20 km north-west of Melbourne to 30 km south-west of Melbourne. Once they were absolutely innumerable, appearing almost as a carpet of flowers in open grass land. Nicholls observed that it was becoming rare by 1934 and by 1951 it was thought to be in peril of extinction. By 1970 only five populations remained. It is currently known in the wild from one highly vulnerable location near a railway line and parking area that is now fenced off and variously there may be from none to three plants to be seen in a given season. The site is managed but it is not an assured option for guaranteed survival of the species as it may not continue to reproduce or survive there and the site may not be worth the effort of management. Since about the 1970's there have been several attempts to artificially raise seedlings for return to suitable safe locations including an attempt by Mark Clements in the early 1980's. Mark successfully raised reasonable numbers by symbiotic techniques and had material distributed to competent terrestrial growers in several states. The specimen that I received thrived for about three or four years but was lost when I became too busy to properly attend my collection. It may have fared better had I known how absolutely rare the species was even at that point in time. I wonder if anyone still has a plant of '*D. punctata* var. *albo-violaceae*' from that period.

Legal collections were taken from the last remaining colonies and the two pots were placed in the hands of the Zoo???, where some staff had great horticultural expertise and where Colin Knight repotted them in 1995 by which time there were about one hundred pots. The zoo grew them extremely well but had the foresight to distribute some pots amongst extremely competent growers to further insure the on-going survival of the species and its gene pools. They still exist. It was hoped that these plants would form a core from which to breed seedlings for introduction back to the wild once the knowledge base existed to guarantee successful return to chosen wild locations. Earlier attempts to return *D. fragrantissima* to the wild would now be regarded as somewhat laughable – one such attempt involved taking seedlings from flask in summer and then proceeding to water them to death. We are fairly sure now that it is better to deflask actively growing plants from flasks in late March or April to May depending on the year then just leave it to the seedlings and nature to survive and grow.

There are other endangered orchids that the Victorian Government, Environmental Organisations, ANOS Victorian Group Inc., and hobbyists alike, are aware of. This puts pressure on various people to do something, but it is difficult to be absolutely certain what the best option is. An example is the plight of at least one species of *Caladenia*. It is clearly unwise to collect such plants as their survival in long-term artificial cultivation has generally been appalling. On the other hand, a *Caladenia* species has vanished while everyone pondered what to do about them. It was not collected to oblivion, rather its habitat and numbers became so reduced that it simply perished.

What are we to do? Should we do anything?

I think that since Europeans came onto the Australian scene with agriculture, horticulture, stock raising and urbanisation we have rendered so many habitats useless to plants and animals that we have a duty to do something WORTHWHILE AND EFFECTIVE to save them.

I think that when a species is down to three known plants it is essential to pollinate one of them with pollen from the other two and to cryo-preserve a portion of that seed for all time until the skills exist to guarantee successful management of the seedlings. The risk exists that the pod parent may be killed, but in my experience most terrestrial orchids carry pods without causing harm to the plant. It has to be better than absolute oblivion with not even seeds for hope of a new generation at any point in time. It is conceivable that all three plants could be naturally pollinated. If so it may be wise to pollinate one plant and collect its seeds anyway. The plants need to be caged to avoid browsing by rabbits, kangaroos or whatever, and protection from grubs or caterpillars may be an issue. A light, fine, porous fabric bag needs to be placed over the near-ripe pod to reliably catch the seed when the capsule ripens. Attempts should be made to grow some of the collected seed by returning it around the parent plants in about March–May of the following season. It may be that there have been no pollinators present in the near past, so no seed capsules have formed. This will start a natural increase in their numbers. Some seed may be put into synthetic woven fabric packs and be buried in the soil near the orchids. Later in the spring it can be lifted to see if the correct mycorrhizal fungus for seed germination is present as there will be germinated protocorms or small plantlets in the packs if the correct mycorrhiza were present. The opportunity would also exist to sacrifice such a protocorm or plant to extract the mycorrhiza and maintain the fungal strain in pure test tube culture for future tissue culture seed, and seedling raising activities as this will lead to the creation of a goodly number of seedlings with high potential for return to safe wild locations.
Often our terrestrial orchids rely on mimicry of another flower to attract their pollinator. Some *Caladenia* are thought to mimic local native flowering shrubs and so it is advantageous to have those plants present as they attract the pollinators to the area whereupon some unwittingly become orchid pollinators. Without the presence of the attractor plants, the probability of natural pollination is very much reduced. By re-introducing the attractor plant species we may expect to have a strong positive effect on pollination rates of the orchids in the wild. Conversely, in orchid populations where there are no attractors, it may be prudent to involve carefully controlled artificial pollination and seed collection.

This must only be done by officially authorised experts or hybrids may inadvertently be produced.

The *Caladenia* (*Arachnorchis*) pose a specific problem in that they are not at all easy to maintain in artificial culture with present skills and knowledge. I suspect we must learn how to NOT water them and how to closely copy essential factors such as soil dryness and moisture or lack of moisture, states throughout the entire year before we can reliably maintain at least a reasonable proportion of the *Caladenia*. Remember they have survived, left alone for eons in the wild despite droughts, floods and all other extremes as well. The problem I see is that our pots can become too wet and then not dry out quickly enough. Even excellent drainage leaves pots far too wet for too long for the *Caladeniae*, (*Caladenia*, *Glossodia*, *Elythranthera*, *Eriochillus*, etc.). I suspect most people do not let the pots dry out in summer as the bush soil would. I firmly believe that really deep pots or styrene foam boxes at least 30–45 cm deep and about 20 cm or more in diameter, filled with their favourite soil type or a mix of 90% coarse sand and 10% peatmoss is ideal. All that is needed then is to water minimally at the right times and to let the system dry out entirely for most species during the dry season and we should regularly and reliably be able to maintain the *Caladeniae*.

For the most part, genera such as *Corybas*, *Diuris*, *Pterostylis*, *Thelymitra* and, to some extent, the *Calochilus* are modestly easy to raise from tissue culture raised seedlings grown without symbiotic mycorrhizal fungi. They are often seen for years in the collections of the fastidious and competent hobby growers with only a few of the species in each genus proving to be uncommonly difficult to keep. The *Caladeniae* are generally very easy to germinate and grow in sterile tissue culture from seed, but generally prove to be all but impossible to deflask and maintain in pot culture so this is a major problem confronting their artificial conservation. This makes them particularly vulnerable to extinction at the moment as we are not reliably successful at cultivating and maintaining mature plants, let alone progressing from deflasked seedlings to mature plants. Having said that, we have seen cases where caladenias that were taken during rescue digs have been and are being maintained for very long times, up to ten and more years, before being lost. Generally the losses happened as a result of temporary neglect by illness or absence of the competent grower, so programs of care that are reliably successful in maintaining such genera or species must be clearly documented in stepwise and complete fashion for others to be able to copy and manage them.

I repeat that it seems clear that we must learn how not to water the *Caladeniae*.

With respect to the *Pterostylis*, *Corybas*, *Diuris*, *Thelymitra*, it seems that a significant number of hobbyists throughout Australia, who collectively have the required knowledge to reliably maintain most species of those genera, and who could probably manage to learn how to grow and maintain those that, are at the moment are regarded as difficult, could grow them, if they had the opportunity. That is if they had flasks of seedlings to work with. This is where the tissue culture laboratories, the government environmental bodies and the hobbyists could amalgamate their skills to become an effective force for the guaranteed long-term survival of our orchid species. The process begins with the proper, legal collection of seed from either captive or wild plants. By ‘collected properly’, I mean either as green pods taken near maturity, but before they are ready to open, and expedited to a laboratory to arrive unopened and undamaged so it will be sown, without delay on to correct germinating medium to assure that there is a very high likelihood of germination. ‘Properly collected ‘may also apply to so called ‘dry seed’. In this case we are talking about pods that have split open and still contain seed. In this case the seed must be removed from the seed pod as quickly as possible. The pod should be put in a place where it will dry out as quickly as possible so that fungi and bacteria do not have the opportunity to grow on the moist pod remains and subsequently infect the seed thus making it impossible or at least difficult to get sterile seed for sowing in tissue culture. The dry seed should then be taken to the tissue culture laboratory as quickly as possible and should then be stored, refrigerated or should be quickly sown on to germinating medium.

This is where hobbyists with collections of identified orchids with provenance details or authorised government environmental personnel are the key. They need to code and record the seed lot with details about the parent plants, genus, species, variety, provenance etc., and these details then need to become a part of the permanent laboratory record to assure complete, accurate and continuous traceability of the data.

The tissue culture laboratory must maintain and extend these records and must insure that completely accurate labels are generated from mother flask to final replates. **A KEY ELEMENT IS ACCURATE, CONTINUOUS TRACEABILITY**. The laboratory must produce deflaskable plants ready at the ideal time of year to be passed on to hobbyist/specialist who has the skills, experience and environmental conditions needed to deflask, raise and maintain the new plants, in sanitary conditions to avoid the introduction of pathogens or pests to those collections. They must also maintain fastidiously accurate labelling and records so that the orchid seedlings or clones continue to be accurately identified in accordance with the original data provided by the source of the seed.

In this way there would be an eventual progression to the point where sufficient numbers of accurately identified new plants would exist and suitable knowledge of their management would be gained to start a program of re-introducing the tissue culture-raised seedlings or clones back into appropriate natural locations for them. It would be ideal if we could find how to re-introduce them to their habitat direct from the flask as this would eliminate the likelihood of introducing pests or pathogens. I have done this now on a few occasions with *Diuris* and with *Thelymitra* on patches of my own property. Several such plants survive to date.

The idea is to deflask plants of good size and stature into a location near an existing plant of the same genus early in winter. I like to do so just before or when it is forecast to be likely to rain on and off for two or more days. By the time it stops, they seem to be quite durable. I think *Pterostylis* would also do well this way, but they are prone to being eaten by some pest in my location, so they don't work for me, but they can easily be deflasked into sphagnum moss in pot culture.

We probably also need to learn about, and consider introducing the plant species, that is the natural attractor for the orchids pollinators. This will be important if the re-introduced seedlings are to be naturally pollinated when they mature and flower. Further, natural pollination would tend to insure that only true species seedlings get to produce seed. Before all this can happen, we must get our orchids into tissue culture in the first place and maintain them until we have the practical knowledge base to know just what each needs in the wild. Many species will flower in flask and I am sure we can aseptically pollinate them to continue to produce generations in flask for as long as is needed.

All this is not 'Pie in the Sky'. It is already happening in Australia. Seedlings of two extremely endangered terrestrial orchid species have already been raised in tissue culture and sent back to the states from whence they came. Further the official government departments have enlisted the expertise of competent hobbyists to help successfully deflask and raise them. I suspect that formal, effective return of these two species to the wild is at most two seasons away.

A major problem that I have seen is that the researchers have referred to scientific texts when determining how to successfully go about a process they have had no personal experience with. The problem then is the degree of applicability of the process chosen. I have seen technology and conditions applied that might do well when deflasking a *Phalaenopsis* or *Sophronitis* that comes from warm, steamy conditions. However when applied to a species of Australian terrestrial orchid whose seedlings would naturally emerge in late winter to early spring where temperatures range from 2-30° C or more whilst they are growing and where conditions oscillate from cold, still and humid to warm , windy and dry, one cannot hope for success from the likes of a mist tent. Again it is obvious that there is significant need for cooperation and interaction between the boffins and the experienced hobbyists. Once this happens in earnest, real progress will begin.

To take this to the 'Nth 'degree, I am certain that we could easily raise and permanently maintain and breed on from both *Rhizanthella gardneri* and *R. slateri* in artificial culture if the symbiont fungus and seed was made available. I was with Jack Warcup on the day he inspected his *R. gardneri* project and discovered near 100% germination and survival. Such an event may well be powerfully compelling enough to encourage those making decisions about funding to look more favourably at endangered orchid projects. It is my fond hope that one day we will see extensive cooperation between all concerned to keep our orchids from the brink of extinction.

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From the Editor's Desk

This issue will bring Volume 14 to an end. I have enjoyed being Editor of this wonderful journal over the past three years. There are many people who have helped and guided me during this time, none more so than Murray Corrigan who has given great support for a journal he originally began editing over forty years ago.

I also would like to thank all the authors for their support, the articles I believe have made *The Orchadian* interesting and educational. I look forward to their continued support through Volume 15. These articles have lead to a ten percent increase in membership over the past three years and this also takes into account those who have not renewed their membership for one reason or another.

The Councillors of ANOS Inc. have given continued encouragement and help for which I am also grateful. Chris and Rona Wareing have enveloped and posted the journal during this time, a job which has helped us all at Council. We thank you both for the time and effort you have given.

My editorials in the past have been simple. As a Libran star sign I tend to let things be, good or bad, one way or another, I do sit on the fence. One of the first articles we read in Volume 14 was that of the by-pass at Bulahdelah. I was annoyed that the road would not only go through bushland at the base of Alum Mountain but also through unique and historical orchid country, that of *Rhizanthella slateri*.

Many people voiced their opinions and concerns to me, mainly as Editor, some in confidence, and some as information to use to try and stop this by-pass. I believe that this whole project was a little out of ANOS's league. Even larger conservation groups did not offer us a great deal of support. One of my concerns was that the authorities felt the orchid was 'Presumed Extinct' in the area

The events leading to the Graham Slater Memorial Trophy.

The incident.

The damage.

The placement of the Throne by Ray.

The Throne.

Another incident.

Photos Alan Blee

as it had not been recorded there for over fifty years. However, I was told that it had been seen there in 1963, 1984 and probably on other occasions as well. None of these sightings were given to the authorities for their records. It is important that we as orchid enthusiasts do record with the 'Atlas of Wildlife' through the National Parks and Wildlife Service all orchid finds, especially those of endangered or vulnerable listing. There are members on ANOS council who do this and are willing to help anyone to record an orchid.

As far as *Rhizanthella slateri* is concerned at Bulahdelah it would appear there is little that can be done to stop the road. During surveys of the area for the 'Environmental Impact Statement', records where taken of *Rhizanthella* finds in the area. Perhaps now we can use this information to study and conserve this rare orchid after the by-pass is completed, as some of the plants will not be destroyed with the road.

Now for some good news. We read in the in earlier issues of *The Orchadian* about *Diuris bracteata*, an orchid that was also presumed extinct. Through the efforts of orchid enthusiasts studying this orchid over the past seven years, that it was with great pleasure that I received a letter from the NSW Scientific Committee stating that they "have made a Preliminary Determination to support a proposal to list an orchid, *Diuris bracteata* Fitzg. as an Endangered Species in Part 1 of Schedule 1 of the Act, and as a consequence, to omit reference to *Diuris bracteata* Fitzg. from Part 4 of Schedule 1 (Species presumed extinct) of the Act."

In Tony Clarke's paper, in this issue, *A study of the hybrid swarm Dockrillia pugioniformis x Dockrillia striolata in the Watagan Mountains,* he finishes by saying - *'Finis – to conclude I appeal to all lovers of our native flora to get out into the bush and record your observations before it is cleared or an illegal dumper has found another precious gem to bury. I hope to continue with this study and will report through The Orchadian in the future.'* something I do endorse as this is where conservation of our orchids does begin.

I have one last concern I need to get off my chest. In Sydney there are four ANOS Groups; Sydney, Warringah, Port Hacking and Macarthur. For the past several years at the Annual General Meetings of ANOS Inc. reports from these Groups have indicated a decline in membership. A fact that is consistent in any social group not just in orchids. Reasons for this are probably varied. Certainly the fact that committee positions are becoming harder to fill has to be a concern for the Groups, this puts more pressure on fewer members. I have mentioned to people over the past few years that maybe its time to look at having one Group in Sydney. The replies have been along the lines of 'it's probably not a bad idea'; 'it would make a lot of sense'. The one major obstacle in Sydney that would stop this idea in its tracks is the logistics of getting to a meeting; many of us would have to travel for 40 - 50 minutes if we could find a central meeting place. But the thought of one strong Group, as in Victoria and South Australia, rather than four smaller Groups, I'm sure does warrant some thought.

I have finished Volume 14 on a light note with a small humorous event that happened last year at Tinonee Orchids Open Day and with a consequent presentation made earlier this year. All those who where familiar with the events will find it amusing, those who are not can see through the photos from Alan Blee the event that will be remembered for a long time, thanks to the ease and spontaneity of digital photography.

I hope you have enjoyed Volume 14, and I hope to see you in Volume 15.

Peter.

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Inaugural Presentation of a Prestigious Award.

In January 2005, at the ANOS Warringah Group meeting, there was the presentation of yet another award. Doctor Christopher Dalrymple, President of the Orchid Society of New South Wales, presented Mr Graham Slater, the Immediate Past President of The Australasian Native Orchid Society, with the inaugural Slater Memorial Trophy. This was presented to Graham for an auspicious event which happened at the Tinonee Open Day weekend in 2004. This weekend brings together members of both the Exotic Orchid Societies and Australasian Native Orchid Societies. Each year they come to meet each other, to share knowledge and experiences from throughout the past year.

On the Friday evening Ray Clement, who hosts this event, brings together some volunteers from both sides of the fraternity to arrange show details and to set out disciplinary events for the show held on the following Sunday. It was here that last year the incident occurred. Many of the volunteers were discussing material, irrelevant to orchids, when copious amounts of wine and laughter, led to the final and eventual destruction of a plastic chair which Graham was sitting on. Graham's ability to fall, whilst still discussing material irrelevant to orchids, and not spill his wine has to be admired. This event was naturally caught on camera and inspired the trophy with which he was awarded in January. From all your friends and colleagues, Graham, congratulations on a trophy only you are worthy of.

The weekend at Tinonee Orchid Nursery is full of fun, walks fellowship and incidences, and I personally feel that this Trophy should become a perpetual trophy, to be presented each year to an individual who can provide and share such enjoyment with so many. Perhaps the custodians of this prestigious award may consider this.
Editor Peter Eygelshoven

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Doctor Christopher Dalrymple, President of The Orchid Society of New South Wales, presents the Slater Memorial Trophy to Graham Slater, Immediate Past President of the Australasian Native Orchid Society.
Photo Bull Dobson

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